Thesis Appendices

Appendix A. Evidence on proximal determinants unavailable in all ENS.

Demographic

Ethnicity

Ethnicity can influence mental health through different pathways such as discrimination, exclusion, cultural differences in symptoms comprehension or genetic background [1]. From a worldwide perspective, there is robust evidence of worse health for indigenous populations compared to the general population [2]. In HIC, there is evidence of a higher prevalence of depression among ethnic minorities [3]. Nevertheless, HIC countries that suffered colonization, such as Australia and New Zealand, differ in the strength and size of determinants of depression from other HIC [2–4].

Indigenous populations in the Latin American region comprise about 7.8% of the population [5]. However, there is a lack of research regarding ethnicity and depression in the region; ethnicity is rarely available to use as a demographic variable in surveys [6, 7], as is the case of health-surveys in Chile. A review of mental health of indigenous populations in the Americas detailed 19 studies but only 3 from Latin America and all were restricted to postpartum women [8]. Still, there is some regional research reporting lower prevalence of depression among indigenous population compared to non-indigenous population [9].

In Chile, 12.8% of the population identifies themselves as part of the indigenous population [10]. Similar to the region, this high proportion has not been translated into research. A study comparing depressive disorders of Mapuche indigenous population and non-indigenous population reported lower but statistically indistinguishable

differences in rates of depressive episodes among these populations [11]. In contrast, there is some evidence of a higher prevalence of depressive symptoms in older Aymara indigenous population compared to general older population [12]. One potential limitation is that the instruments used to assess depression are not culturally-specific for this population, therefore, the possibility of information bias should be considered [13].

Around two-thirds of the million immigrants living in Chile arrived in the 2010-2017 period [10]. Given how recent this scenario is, there is scant research on depression among the immigrant adult general population [14, 15]. There is a need for more updated data and research on ethnicity, immigration and depression. Only the last ENS included questions about immigration but the low number of immigrants —about 3.5% of the sample — diminished the statistical power to carry out any analyses.

Socioeconomic

Debt

Debt is a common feature of modern society , however, its accumulation can lead to an unstable financial situation and deterioration of mental health [16]. For people in this scenario, the term indebtedness will be applied. It is defined as the inability to comply in due time with financial commitments, even after compromising living standards [17]. This is different from the perceived economic stress that individuals feel regarding their economic situation —defined as financial strain [18]— that has an inherently subjective component. It has been posited that the effect of debt on health is mostly due to increased anxiety over not being able to pay [19]. To avoid overlapping with financial strain, this section will focus on objective measures of indebtedness.

The effect of indebtedness on depression has been mostly examined in HIC. Reviews on the health effects of indebtedness have reported higher rates of depression among

indebted groups [16, 20]. These groups were 2.77 (95% CI 2.5-3.07) times more likely to be depressed compared to non-indebted groups. Similarly, in longitudinal associations, indebtedness has been associated with an increased incidence of depressive symptoms [21, 22]. Debtor status is one of the consistent economic indicators of adverse mental health outcomes [23]. Despite that, the association between indebtedness and depression in Latin American is highly under-researched [24].

Similar to the regional situation, research examining the association between debt and depression in Chile is limited. Only one study could be found examining this association [24]. This longitudinal study assessed depressive symptoms and indebtedness trajectories. Indebted participants were more likely to have higher depressive symptoms, accounting for the effect of covariates compared to those without debt over an analyzed period of three years. No other study in the country has assessed this association using objective measures of indebtness.

Neighbourhood

Neighbourhood can be understood as a long term exposure to socioeconomic and psychosocial elements [25] that can influence risk of depression [25, 26] and also interact with other factors [1]. It is particularly challenging to separate proximal factors from distal ones as the evidence in this domain often combines both aspects.

The evidence of the association between neighbourhood and depression has shown some systematic limitations. Although it has been posited that certain neighbourhood elements may play a larger role in LMIC [27], most of the evidence examining the association is from HIC [28–30]; neighbourhood and specific area-level exposures definitions tend to be vague and, as a by-product, measurements are inconsistent. Studies from Latin America examining this association are either restricted to

population under 18 years old [31–33] or reported their outcomes by broader categories of mental health [34]. There is also a general lack of longitudinal studies [30]. Finally, empirical testing of pathways linking neighbourhood exposures with depression is scant [29].

Safety and Security

Safety and security encompass objective and subjective elements [35]. Objective elements are related to experienced antisocial behaviours such as crime, while the subjective elements are related to perception of security within the neighbourhood and the emotional reaction towards this perception. There is evidence of a strong correlation between these objectives and subjectives elements [36].

A review assessing the influence of neighbourhood elements on depression reported a mostly consistent association with crime and safety [29]. From the six studies examining this exposure, four reported that lack of safety and security was associated with higher risk of depression, all these studies were from the US. Upon closer inspection, some of these studies used a distal exposure, such as neighbourhood deprivation [37]. In one study, both perception of neighbourhood disorder and experienced violence were directly associated with depressive symptoms in path models [36]. The two studies that reported no association were from the UK and based on older populations [38, 39]. This suggests that the effect of neighbourhood may differ according to context and population [37]. Two mechanisms have been proposed to explain the elevated depression prevalence in less safe neighbourhoods: feelings of lack of control and difficulties in developing protective social networks [35].

The exploration of the role of safety in depression in Latin American is scarce. The absence of studies from the region in reviews of the topic reflects how under-researched is the topic [28–30], especially considering that the Latin American is one

of the most violent regions in the world. Studies examining the association between neighbourhood and depression are focused on young populations [31–33]. In all these studies, variables related to violence were associated with higher risk of depressive symptoms. A cross-sectional study on general adult population from Brazil reported that people who were exposed to three or more crime-related events had 3.80 (95% CI 2.30-6.10) times the odds of having a mood disorder than people with no exposure to these events [34].

The literature in Chile assessing the association between violence or safety and depression is focused on other forms of violence rather than neighbourhood-related violence [40]. Although the 2010 ENS had questions regarding victimization and perception of safety [41], no study used these variables to examine the aforementioned association. Moreover, these questions were only included in the mentioned version of the survey.

Housing Structure

Due to the difficulty in disentangling housing structure from other SES measures, the effect of the former on depression is a challenging research topic [42]. Yet, it has been recognized as a social determinant of mental health and depression [1, 43, 44]. This factor refers to the building materials and design of a household. Design also encompasses inadequate ventilation, damp and mould [45]. It differs from built environment in that the latter distal factor is an area-level measure that also includes public lighting, pavement, roads, among other elements that cannot be measured at the household level.

Reviews assessing neighbourhood effects on depression include few studies examining housing structure [46]. Moreover, most research is focused on built

environment [47, 48]. Nevertheless, there is some evidence of a negative association between housing structure and depression [42, 48–50].

Although inadequate housing structure is common in Latin America [51], research assessing its relationship with depression is very limited. Reviews examining the association between neighbourhood and depression include few or no studies from the region [28, 29, 46]. A Colombian study reported no association between housing structure and lifetime prevalence of any mental disorder among urban population, whilst, surprisingly, an association opposite to the expected direction was reported for rural population [52]. It is relevant to highlight that the mentioned study used a broader outcome than depression.

The association between housing quality and depression is not vastly explored in Chile. Only one study could be found assessing this association [53]. This study reported that people living in houses with fair and poor quality had 1.32 (95% CI 1.00-1.75) and 1.53 (95% CI 1.05-2.23) times the odds of having CMD than people living in houses of good quality, respectively, in adjusted models. Measurement of housing quality, however, encompassed more than just structure and was based on visual inspection by the interviewer.

Overcrowding

Overcrowding has been historically associated with higher risk of communicable disease [54], however, in recent decades it has been recognized as a SDMH [1]. A clear threshold of what constitutes overcrowding is not well-established. In HIC, there is evidence of an association between overcrowding and depression from several reviews [28, 29, 46].

Although overcrowding in Latin America is higher than in other regions [55], its relationship with depression is still under-researched. A review assessing social determinants of depression in the Caribbean examined 90 inequality relationships but only one was related to overcrowding [56]. People living in households with more than one person per bedroom had a higher prevalence of depressive symptoms than households with one or fewer persons per bedroom [57].

In 2011, overcrowding —defined as 2.5 or more people living per room— affected about 11% of the households in Chile, dropping to 6.5% in 2017 [58, 59]. Most studies assessing social determinants of depression do not include overcrowding in their analyses and studies that do include this factor are not nationally representative [53] or have restricted samples [40]. Moreover, neither of these studies reported an association between overcrowding and depression. The measurement of overcrowding in the latter study was defined as more than one person per room and the result was marginally non-significant. Therefore, it could be argued that with a different cut-off of overcrowding, results may change. No nationally representative research could be found that examined this association in Chile. The last ENS includes information regarding number of people in the household and number of rooms, which makes it feasible to derive an overcrowding variable to examine its relationship with depression in the country.

Appendix B. Potentially relevant variables not included in analyses due to unavailability across all ENS.

Demographic

Ethnicity: Questions about ethnicity were asked only in the 2017 ENS. A binary variable was created to indicate whether the participant identified as part of indigenous population or not. In the 2003 and 2010 ENS, there is no information on ethnicity.

Socioeconomic

Income: In the 2010 and 2017 ENS, participants were asked to indicate a category of income from several bands of income. These bands were collapse into five bands of income. No questions about income were asked in the 2003 ENS.

Financial strain: The 2003 ENS does not include any variable about financial strain. The other two ENS asked the participants their level of financial strain in the last 12 months. Participants categorized their level of financial strain according to three levels: nothing or little, moderate and high or much.

Neighbourhood

Safety and security: Only the 2010 ENS enquired about safety. Participants were asked how safe they feel about crime and violence when they are alone at home. Categories for the questions were completely safe, very safe, moderately safe, little safe, not safe at all. These categories were collapsed into three categories: completely safe/very safe, moderately safe and little safe/not safe at all.

Housing structure: The 2010 and 2017 ENS asked questions on material of housing. Specifically, about ceiling, floors and walls. The answers to each of these questions were transformed into ordinal variables with three categories: precarious, normal and affluent. Then, a housing structure index was derived by adding these three questions,

where a higher score indicates a most precarious house structure. These indexes were later transformed into tertiles for all surveys.

Overcrowding: Only the 2017 ENS asked the number of bedrooms in the household. With the number of people living in the household, it was possible to derive a crowding variable. Overcrowding was defined as 2.5 or more people per bedroom in the household.

Social and cultural

Social Participation: In the 2010 and 2017 ENS, group membership was asked. Participants responded if they were part of a group. A binary variable indicating group membership was created. The 2003 ENS had no questions about social participation.

Social Support: The 2010 and 2017 ENS enquired about social support. Level of emotional support was obtained by asking participants if they have someone to rely on in case of problems. Possible answers were “always”, “most of the time”, “sometimes”, “rarely or never” and “I don´t like to ask for help to anyone”. Level of instrumental of support was obtained by asking participants whether they have someone to go in case of unforeseen expense, economic emergency or another catastrophic situation. The same possible answers to emotional support were possible. Both of these variables were transformed into tertiles by collapsing some of the possible answer categories. Low tertile correspond to the latter two categories, medium tertile was derived from the combination of the categories “most of the time” and “sometimes”, while high tertile of social support corresponds to the “always” category.

Appendix C. Details of the 8-stage process to build the index of multiple deprivation [60].

1. Selection of data source: Firstly, the CASEN survey was selected as the primary source of information due to availability of several indicators related to deprivation in different areas and its periodic nature.

2. Selection of unit of analysis: Household was the chosen unit of analysis for three reasons. Firstly, because resources are shared within a household, deprivation is likely to affect not only one member but the whole household. Also, this is consistent with previous approaches to measure deprivation in the country using household as the unit of analysis. Lastly, the choice of this unit is consistent with policies of alleviation of poverty focusing on the household level, widely implemented in Chile.

3. Selection of dimensions: According to Sen [15], the dimensions selected to measure deprivation need to be seen as socially necessary. However, as each society has its own culture and values, the selection of dimensions will differ accordingly. Alkire [14], has highlighted five factors that influence the selection of dimensions to construct an index of multidimensional deprivation: data availability, experts' assumptions, public consensus, empirical evidence on people's values and legal frameworks.

In Chile, four dimensions have been proposed in this context. The first is education, seen as a mean to integrate someone into a community and help develop people's life projects. Deprivation in this domain limits the possibility of development and social integration of individuals. Health is also selected as a relevant domain as represents a key condition for the development of human capabilities in different life aspects. Housing was selected under the assumption that the conditions in which people live directly affect their capacity to develop their life project. Lastly, work and social security

are selected because it provides resources to satisfy people's need and also because it has an intrinsic value that contributes to the individual's esteem and belonging to a community [13]. In recent years a fifth dimension has been proposed [16]. This dimension relates to networks and social cohesion. However, due to inavailability of data from that particular dimension prior to 2017, this dimension was not considered for this work.

4. Selection of indicators for each dimension: Based on the available data on the different CASEN surveys and the selected dimensions for multidimensional deprivation, several indicators have been proposed. These indicators were discussed with relevant stakeholders. Finally, the Ministry of Social Development agreed on a three indicators per dimension.

5. Selection of deprivation threshold for each indicator: The criteria and procedure to determine threshold are very diverse. They shared that the common aim is to establish the minimum level from which a person can live with dignity. The different thresholds for the indicator are mentioned in the definition of each indicator in the methods section.

6. Selection of weights for each indicator and dimensions: After discussion with relevant stakeholders, the Chilean Ministry of Social Development, decided to keep an equal weight for all dimensions. No relevant reasons have been found to justify one dimension as more important than another dimension. This could also be applied to indicators. Therefore, each dimension will be weighted with a 25% of the overall index, and each indicator will contribute equally, 8.33%, of the index.

7. Identification: Traditionally, two ways have been used to identify multidimensionally deprived individuals: the union and the intersection approach. In

the union approach, a household is considered multidimensionally deprived if at least one of the indicators is classified as deprived. In the second approach, a household is considered multidimensionally deprived if all indicators are classified as deprived. The first approach has the disadvantage of not allowing to focus and distinguish those who are poorer among the multidimesionally deprived. The intersection approach, on the other hand, has the disadvantage of identifying potentially only a small proportion of the population as multidimensionally deprived.

The Alkire Foster method can use a dual-threshold to classify a household as multidimensionally deprived [14]. The first threshold is related to the specific conditions for each indicator to identify an individual as deprived. After that, the indicators are summed and a second threshold is established based on a minimum amount of indicators that should be classified as deprived to consider someone as multidimensionally deprived. The higher this second threshold, the higher the conditions to consider someone or a household as multidimensionally deprived. In the case of Chile, it was decided that those who have at least 3 indicators of deprivation out of the 12 would be considered as multidimensionally deprived.

8. Aggregation: This stage refers to the aggregation of those who are multidimensionally deprived to obtain a summary area measure at a higher level, such as borough, region or country. Two factors are relevant at this stage: the count rate and the adjusted count rate. The first one is a measure of incidence that indicates the percentage of population considered to be multidimensionally deprived. This count however, is not sensible to how deprived a household is. The adjusted count rate also uses information on poverty intensity, operationalized as the number of indicators classified as deprived among those who are considered to be multidimensionally deprived. The adjusted count rate, then, is defined as the product between the

incidence of poverty and the mean number of indicators classified as deprived among those multidimensionally deprived.

Appendix D. Table D1. Prevalence of depressive symptoms by proximal determinants in the analytical sample of the Chilean population in the 2003-2017 period.

Variable	Category	2003 ENS		2010 ENS		2017 ENS	
		%	95% CI	%	95% CI	%	95% CI
Sex	Males	10.17	7.40—12.95	9.05	6.75—11.35	10.14	7.79—12.49
	Females	24.57	21.23—27.92	26.25	23.13—29.36	22.01	18.56—25.46
Age groups (years)	18-24	16.44	11.76—21.13	17.15	12.29—22.01	11.68	7.33—16.02
	25-44	19.09	15.73—22.45	19.01	15.55—22.47	17.72	14.03—21.4
	45-64	16.99	13.28—20.7	19.44	16.03—22.86	19.27	15.41—23.13
	65+	13.97	10.35—17.59	11.21	7.32—15.10	8.10	5.84—10.37
Area	Urban	18.38	16.04—20.72	18.31	16.12—20.49	16.49	13.97—19.01
	Rural	11.99	8.47—15.51	15.10	10.98—19.23	12.65	9.50—15.8
Marital status	With Partner	17.36	15.06—19.66	16.92	14.38—19.46	11.66	9.29—14.02
	Widowed/Divorced	25.69	19.60—31.79	23.38	17.58—29.19	23.85	17.82—29.88
	No Partner	15.59	11.86—19.33	17.42	13.54—21.31	19.85	15.80—23.9
Working status	Employed	13.09	10.52—15.65	12.35	10.07—14.63	15.77	12.56—18.98
	Homemaker	25.53	21.61—29.45	33.49	28.06—38.93	20.69	15.38—25.99
	Retired	12.14	7.13—17.16	13.66	8.84—18.49	10.73	6.97—14.49
	Student	15.62	7.47—23.78	19.12	11.02—27.21	13.87	6.62—21.12
	Unemployed	21.72	14.73—28.71	22.68	13.67—31.69	19.98	11.94—28.02
Years of education	13+ years	17.33	9.91—24.75	12.22	8.68—15.77	13.23	9.50—16.96
	8-12 years	17.88	15.05—20.71	19.58	16.77—22.39	18.37	15.08—21.66
	Less than 8 years	17.19	14.22—20.16	20.84	16.32—25.36	13.52	9.09—17.96

Cntd. Table D1. Prevalence of depressive symptoms by proximal determinants in the analytical sample of the Chilean population in the 2003-2017 period.

Variable	Category	2003 ENS		2010 ENS		2017 ENS	
		%	95% CI	%	95% CI	%	95% CI
Reciprocity	High	12.82	10.59—15.05	12.50	10.19—14.82	10.39	8.34—12.43
	Medium	22.57	18.15—26.98	25.75	21.58—29.92	21.84	17.03—26.65
	Low	30.21	23.21—37.2	33.36	26.02—40.7	28.13	21.79—34.48
Trust	High	12.79	9.15—16.43	12.02	8.21—15.82	9.07	6.16—11.98
	Medium	16.43	13.44—19.42	14.87	12.35—17.38	15.64	12.31—18.97
	Low	23.06	19.07—27.05	29.70	25.19—34.21	23.81	19.2—28.42
Physical activity	3+ times weekly	15.38	9.16—21.61	12.84	7.18—18.51	13.42	7.74—19.1
	1-2 times weekly	11.13	6.86—15.4	14.72	8.19—21.25	13.75	7.61—19.88
	>4 times monthly	9.70	3.29—16.10	3.58	1.46—5.69	13.41	3.63—23.19
	No sport	19.65	17.05—22.25	19.98	17.63—22.32	17.00	14.44—19.56
Smoking status	Non-smoker	16.09	13.39—18.78	15.55	13.13—17.96	14.54	12.00—17.08
	Smoker	19.32	16.18—22.45	21.13	17.59—24.67	19.18	15.28—23.08

Appendix E. Sample characterization by sex

Table E1. Results of the weighted distribution of depressive symptoms in the analytical sample of the Chilean adult population in the 2003-2017 period among females.

Variable	Category	2003 ENS		2010 ENS		2017 ENS	
		N	%	N	%	N	%
Depressive symptoms	CIDI-SF<5	1408	75.43	1,924	73.75	2,848	77.99
	CIDI-SF≥5	390	24.57	521	26.25	507	22.01
Age groups (years)	18-24	178	16.48	273	17.15	317	13.23
	25-44	550	44.04	865	40.12	1,022	37.92
	45-64	605	27.34	827	30.14	1,169	33.66
	65+	465	12.14	480	12.59	847	15.19
Area of residence	Urban	1531	88.27	2,074	87.26	2,771	88.10
	Rural	267	11.73	371	12.74	584	11.90
Marital status	With Partner	988	57.71	1,332	55.68	1,500	47.32
	Widowed/Divorced	410	13.24	567	17.30	906	20.79
	No Partner	400	29.05	546	27.02	949	31.89
Working status	Employed	429	29.83	866	39.72	1,343	43.54
	Homemaker	981	49.54	981	37.41	1,009	32.19
	Retired	143	4.28	359	9.67	701	12.84
	Student	73	6.92	121	7.91	163	7.68
	Unemployed	172	9.42	118	5.29	139	3.75

Cntd. Table E1. Results of the weighted distribution of depressive symptoms in the analytical sample of the Chilean adult population in the 2003-2017 period among females.

Variable	Category	2003 ENS		2010 ENS		2017 ENS	
		N	%	N	%	N	%
Years of education	13+	193	16.84	479	25.53	726	25.48
	8-12	652	43.15	1,280	54.10	1,744	54.57
	Less than 8	953	40.01	686	20.37	885	19.95
Reciprocity	High	1040	58.12	1,466	62.24	1,812	51.89
	Medium	449	27.34	673	25.21	1,062	32.49
	Low	309	14.54	306	12.54	481	15.62
Trust	High	479	25.29	639	30.29	873	25.51
	Medium	614	39.26	1,116	42.16	1,446	41.84
	Low	705	35.44	690	27.56	1,036	32.65
Physical activity	3+ times weekly	136	9.33	139	6.44	296	10.13
	1-2 times weekly	118	6.86	118	5.87	176	6.33
	>4 times monthly	37	2.3	64	3.63	69	2.26
	No sport	1507	81.52	2,124	84.05	2,814	81.28
Smoking status	Non-smoker	1257	61.59	1,626	61.35	2,491	71.64
	Smoker	541	38.41	819	38.65	864	28.36

Table E2. Results of the weighted distribution of depressive symptoms in the analytical sample of the Chilean adult population in the 2003-2017 period among males.

Variable	Category	2003 ENS		2010 ENS		2017 ENS	
		N	%	N	%	N	%
Depressive symptoms	Non depressed	1361	89.83	1,565	90.95	1,871	89.86
	Depressed	142	10.17	131	9.05	154	10.14
Age groups (years)	18-24	196	20.11	212	17.50	234	14.39
	25-44	518	45.29	583	42.08	601	39.37
	45-64	465	26.19	585	29.41	704	33.57
	65+	324	8.42	316	11.02	486	12.67
Area of residence	Urban	1209	84.59	1,456	87.02	1,730	89.85
	Rural	294	15.41	240	12.98	295	10.15
Marital status	With Partner	966	57.03	1,087	61.99	1,131	58.99
	Widowed/Divorced	128	4.54	218	8.12	275	7.77
	No Partner	409	38.43	391	29.89	619	33.25
Working status	Employed	892	64.54	1,209	73.94	1,378	73.22
	Homemaker	0	0	21	1.17	17	1.21
	Retired	296	9.63	265	9.07	379	10.81
	Student	84	8.26	82	6.87	125	8.09
	Unemployed	231	17.57	119	8.95	126	6.66

Cntd. Table E2. Results of the weighted distribution of depressive symptoms in the analytical sample of the Chilean adult population in the 2003-2017 period among males.

Variable	Category	2003 ENS		2010 ENS		2017 ENS	
		N	%	N	%	N	%
Years of education	13+ years	230	19.84	347	26.63	515	31.74
	8-12 years	558	44.22	945	57.04	1,089	53.87
	Less than 8 years	715	35.94	404	16.33	421	14.39
Reciprocity	High	924	65.8	1,102	67.40	1,197	63.87
	Medium	360	23.09	452	26.32	575	24.58
	Low	219	11.12	142	6.28	253	11.55
Trust	High	462	33.11	494	30.89	634	33.91
	Medium	523	37.73	773	44.17	842	40.50
	Low	518	29.16	429	24.94	549	25.59
Physical activity	3+ times weekly	144	12.21	178	13.23	287	15.24
	1-2 times weekly	219	17.13	190	12.75	244	14.91
	>4 times monthly	104	11.21	130	7.48	86	5.31
	No sport	1036	59.45	1,198	66.54	1,408	64.54
Smoking status	Non-smoker	872	49.7	1,029	54.34	1,352	62.65
	Smoker	631	50.3	667	45.66	673	37.35

Appendix F. Mapping of multidimensional deprivation

Figure F1. MDD of Arica y Parinacota region (XV) by year.

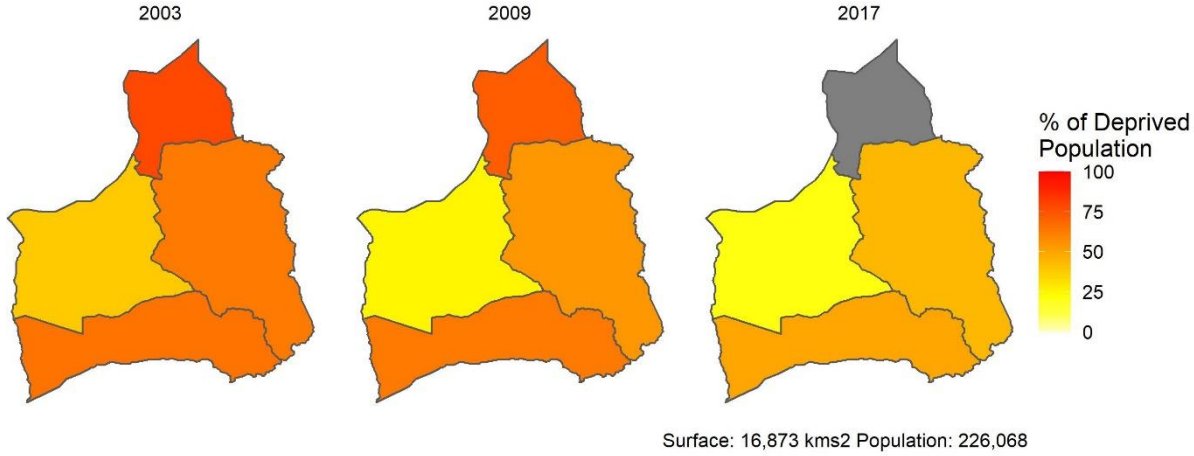


Figure F2. MDD of Tarapaca region (I) by year.

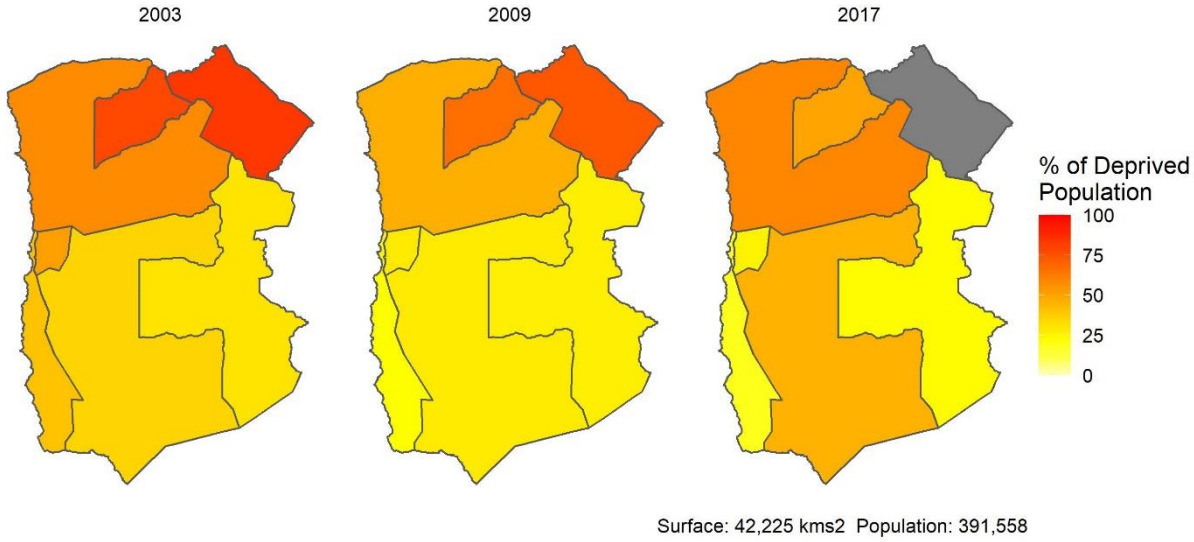


Figure F3. MDD of Antofagasta region (II) by year.

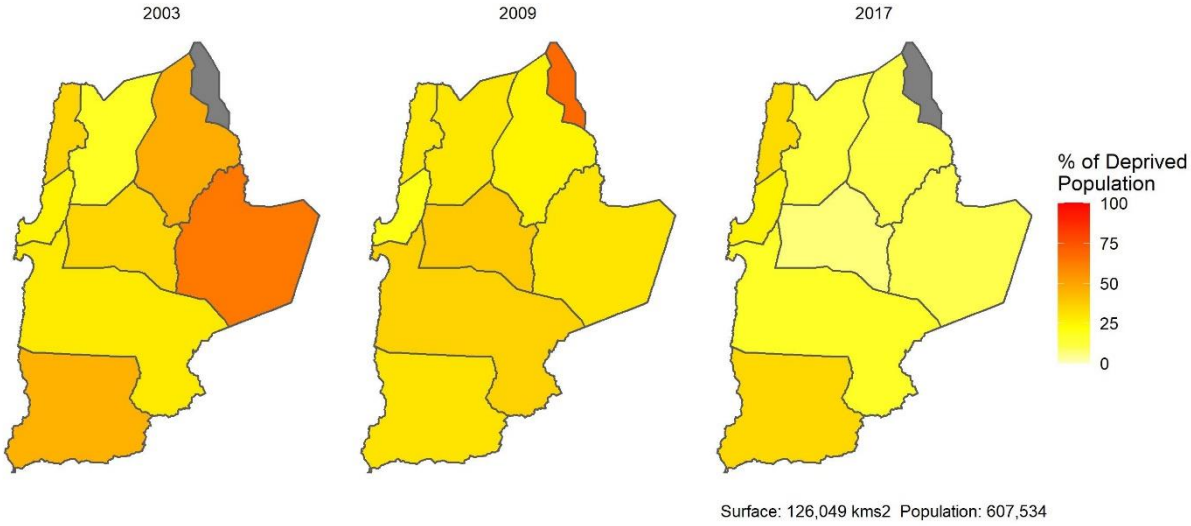


Figure F4. MDD of Atacama region (III) by year.

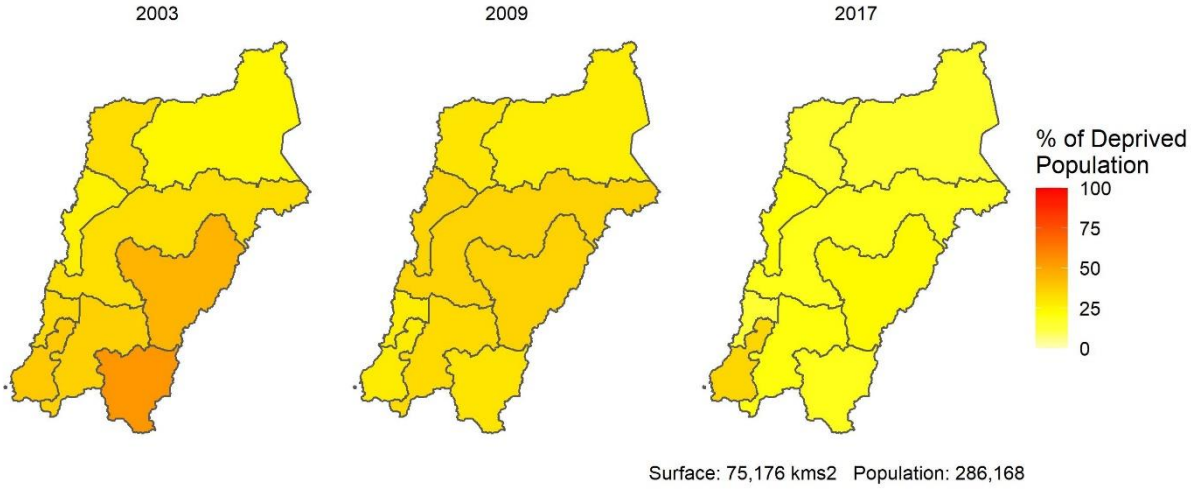


Figure F5. MDD of Coquimbo region (IV) by year.

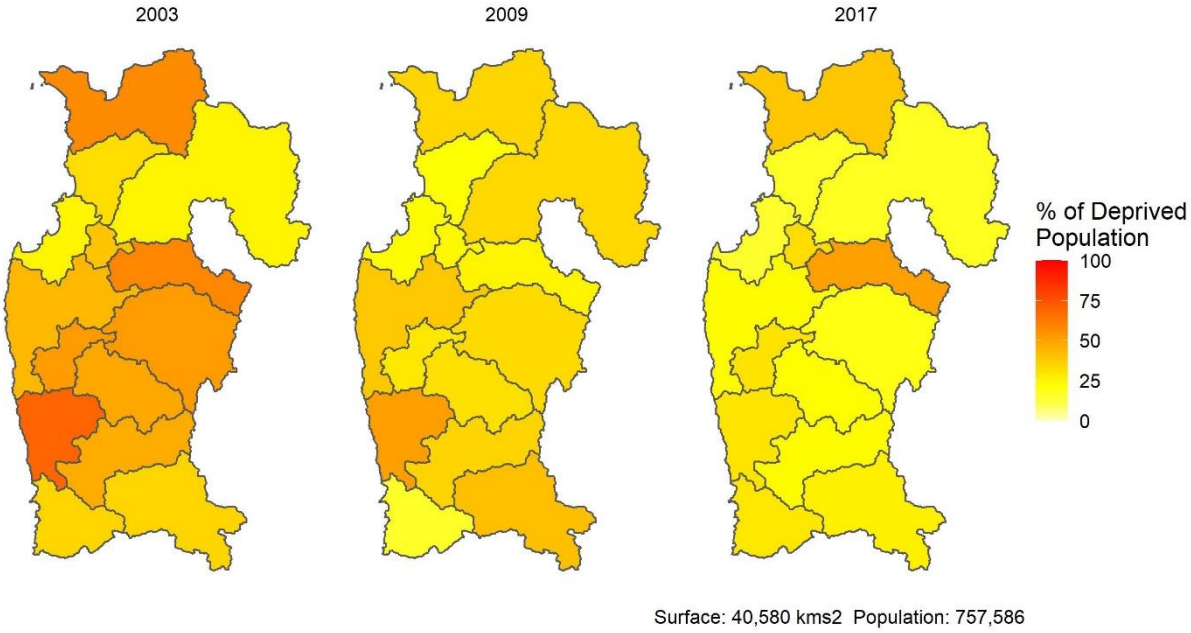


Figure F6. MDD of Valparaiso region (V) by year.

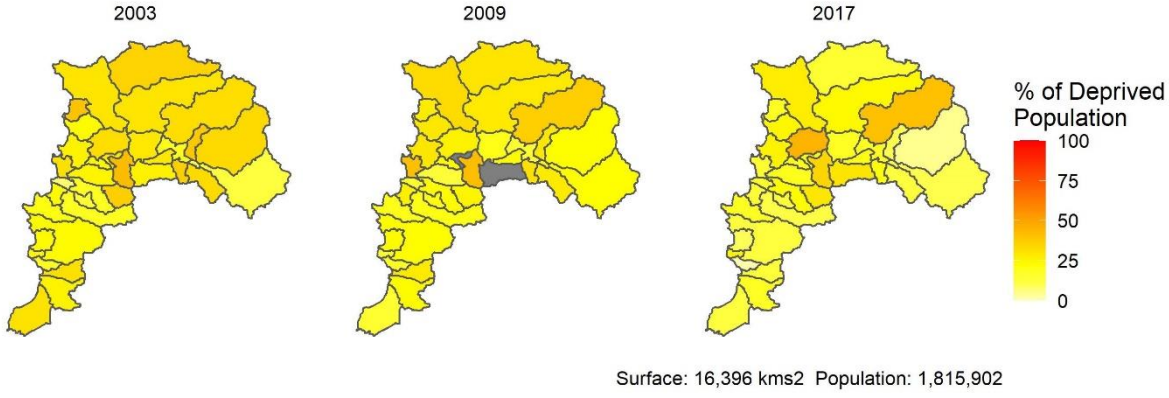


Figure F7. MDD of Metropolitan Region (XIII) by year.

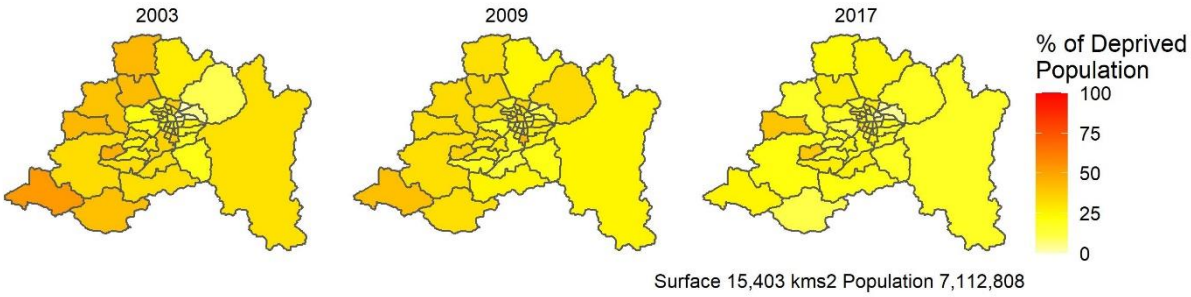


Figure F8. MDD of O'higgins region (VI) by year.

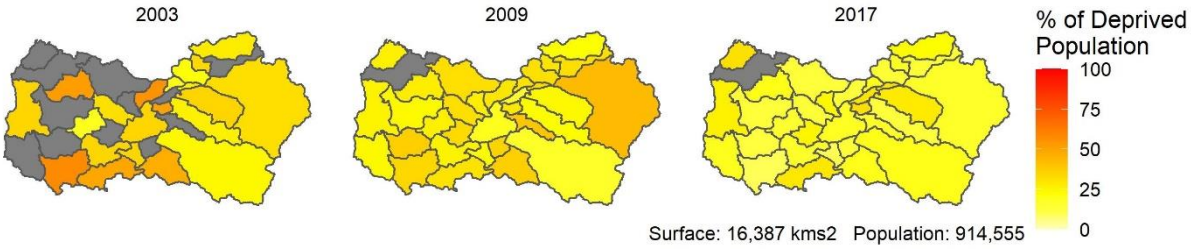


Figure F9. MDD of Maule region (VII) by year.

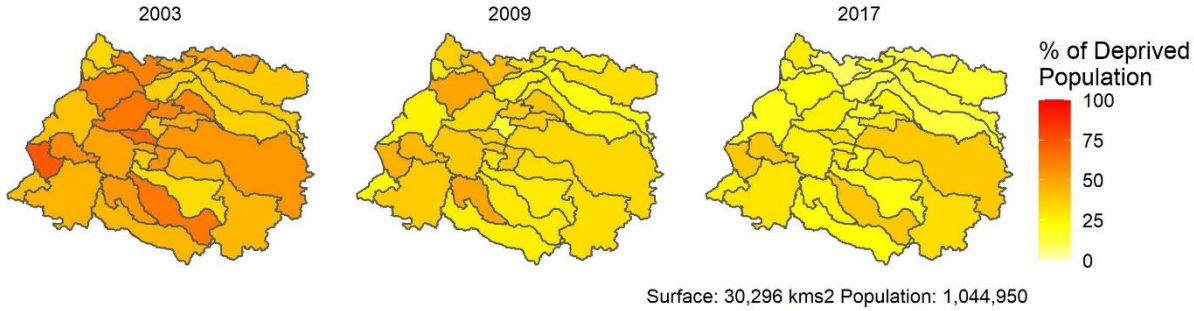


Figure F10. MDD of Biobio region (VIII) by year.

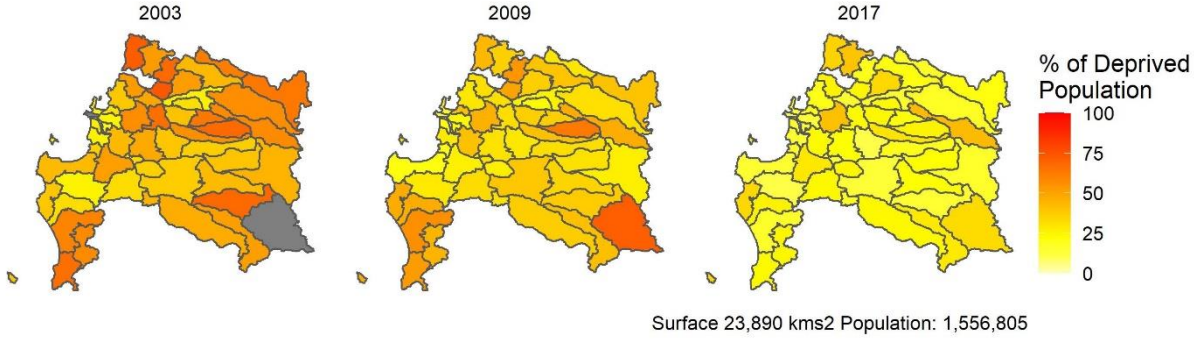


Figure F11. MDD of Araucania region (IX) by year.

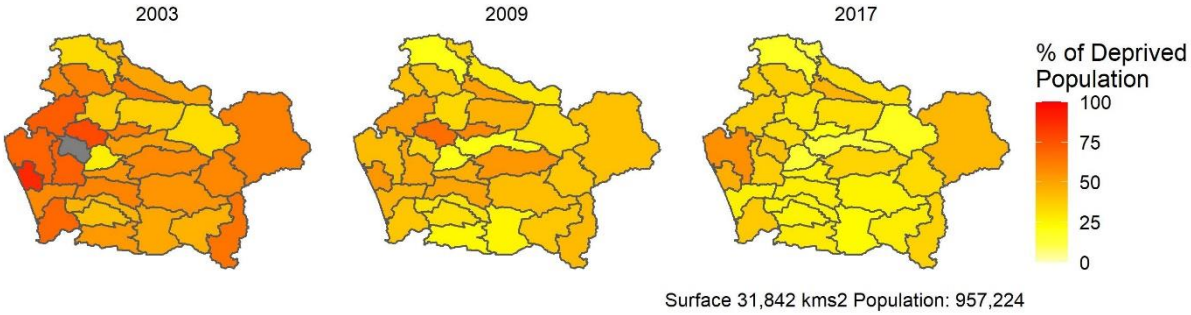


Figure F12. MDD of Los Rios region (XIV) by year.

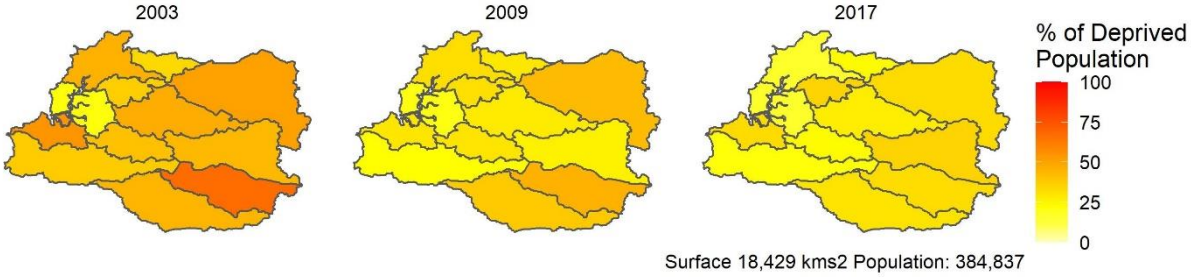


Figure F13. MDD of Los Lagos region (X) by year.

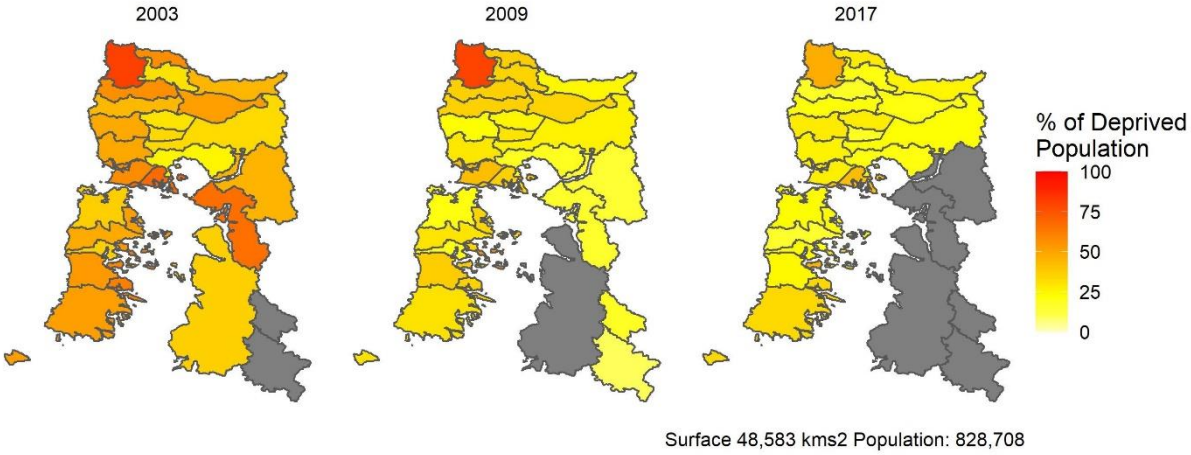


Figure F14. MDD of Aysen region (XI) by year.

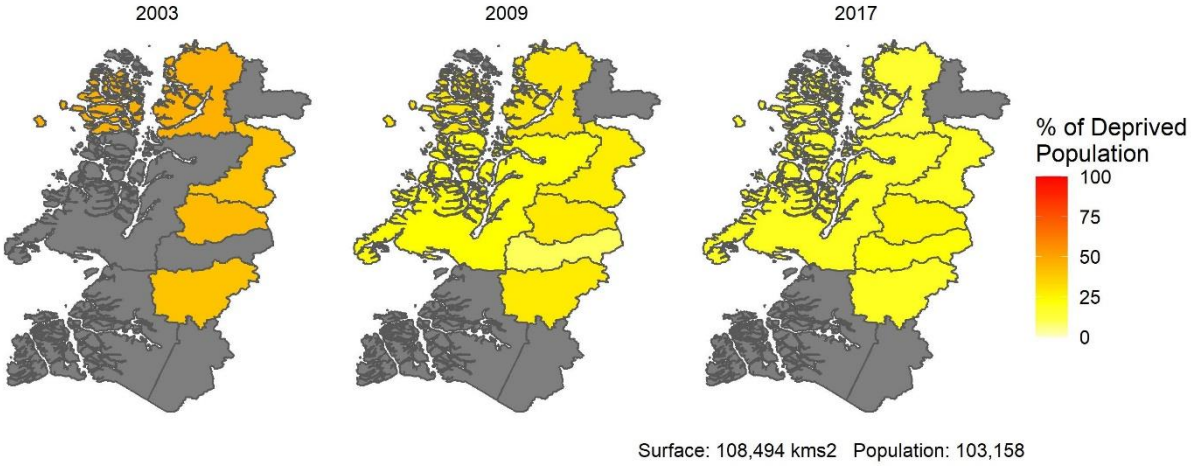
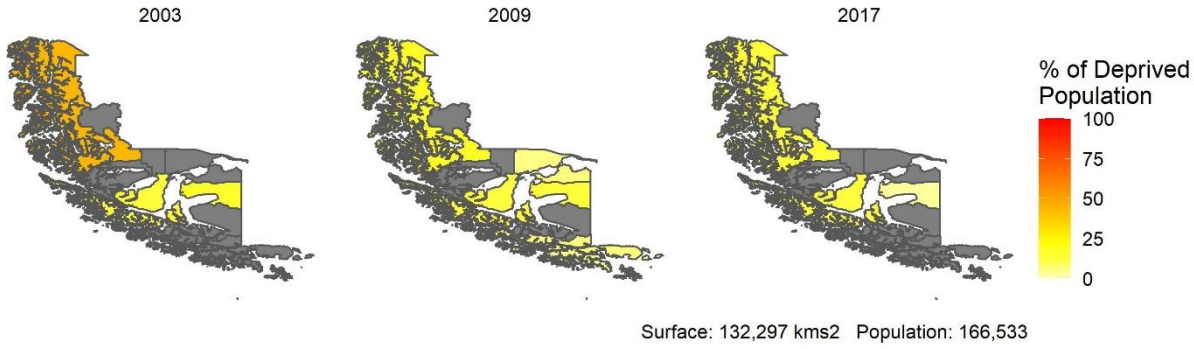


Figure F15. MDD of Magallanes region (XII) by year.



Appendix G. Mapping of economic inequality

Figure G1. Economic inequality of Arica y Parinacota region (XV) by year.

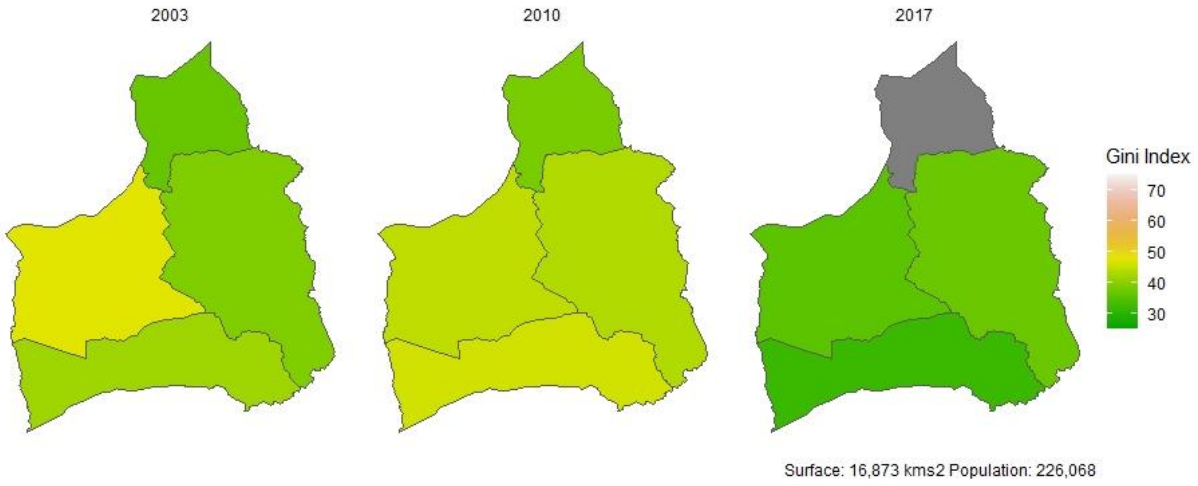


Figure G2. Economic inequality of Tarapaca region (I) by year.

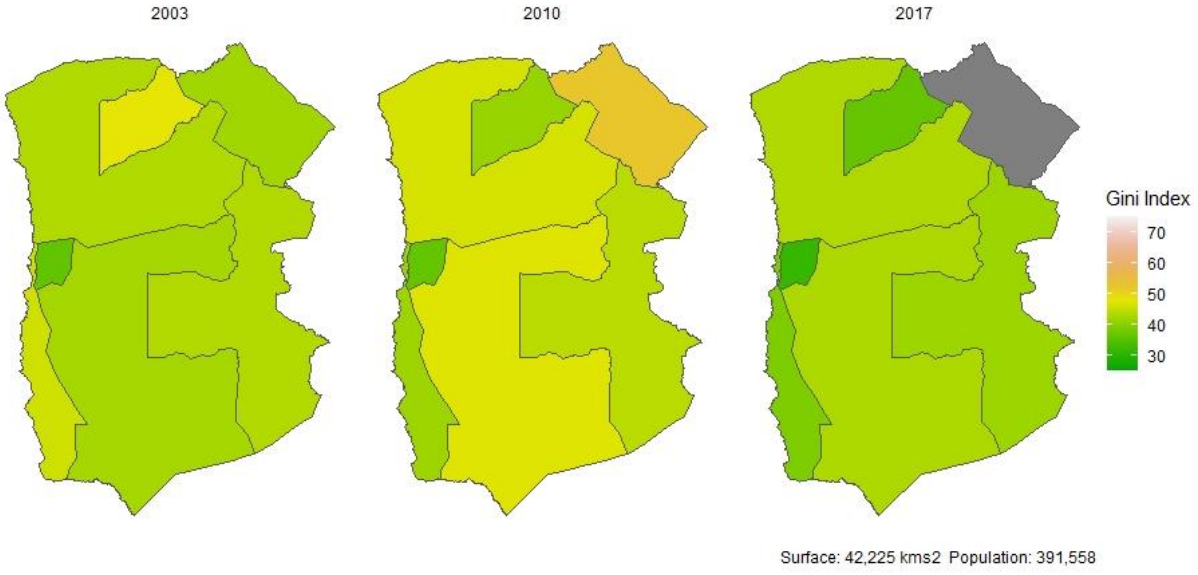


Figure G3. Economic inequality in Antofagasta region (II) by year.

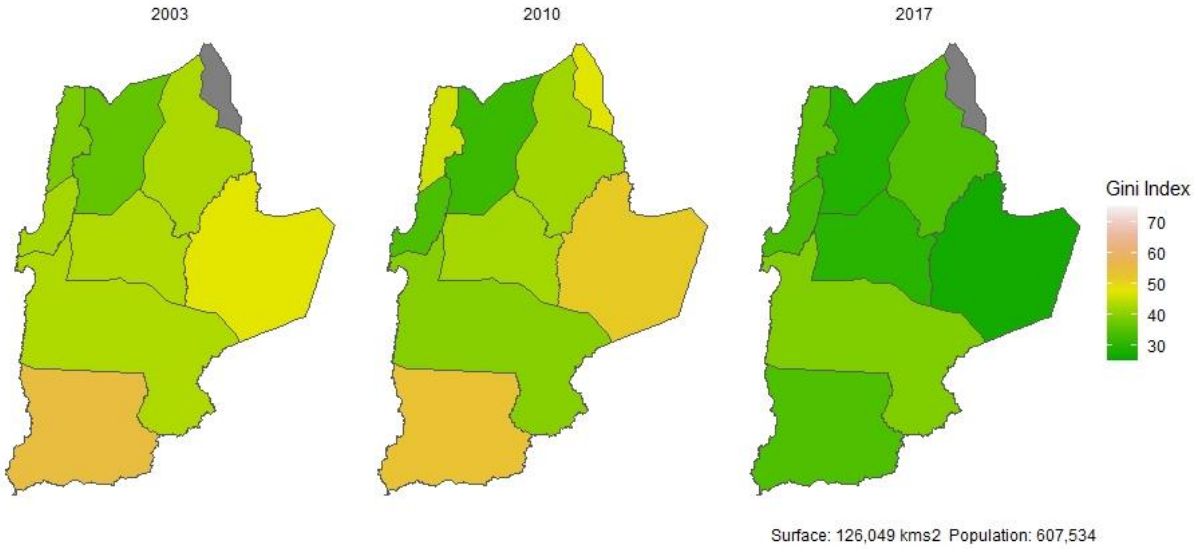


Figure G4. Economic inequality in Atacama region (III) by year.

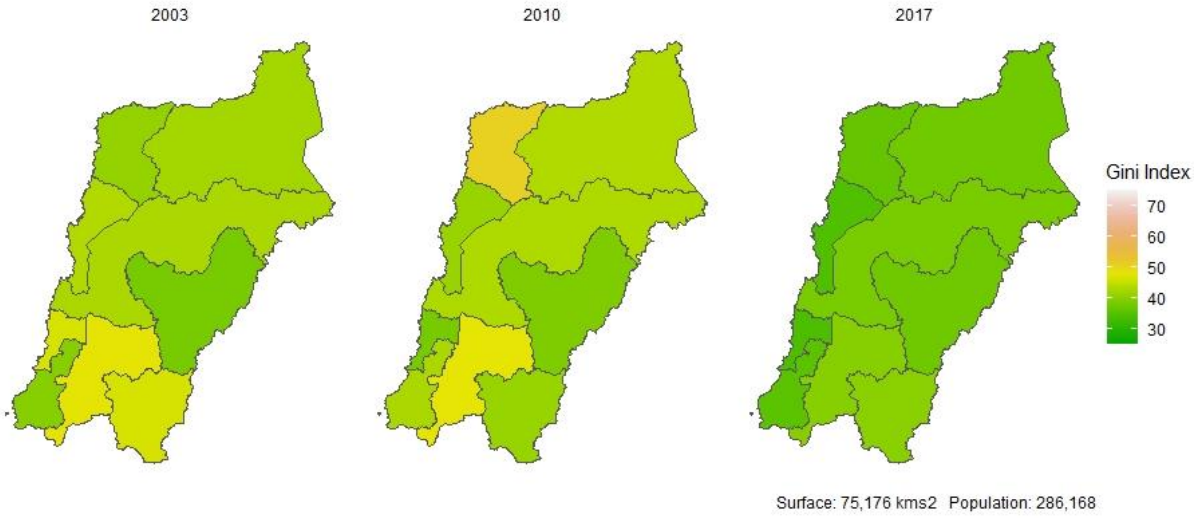


Figure G5. Economic inequality in Coquimbo region (IV) by year.

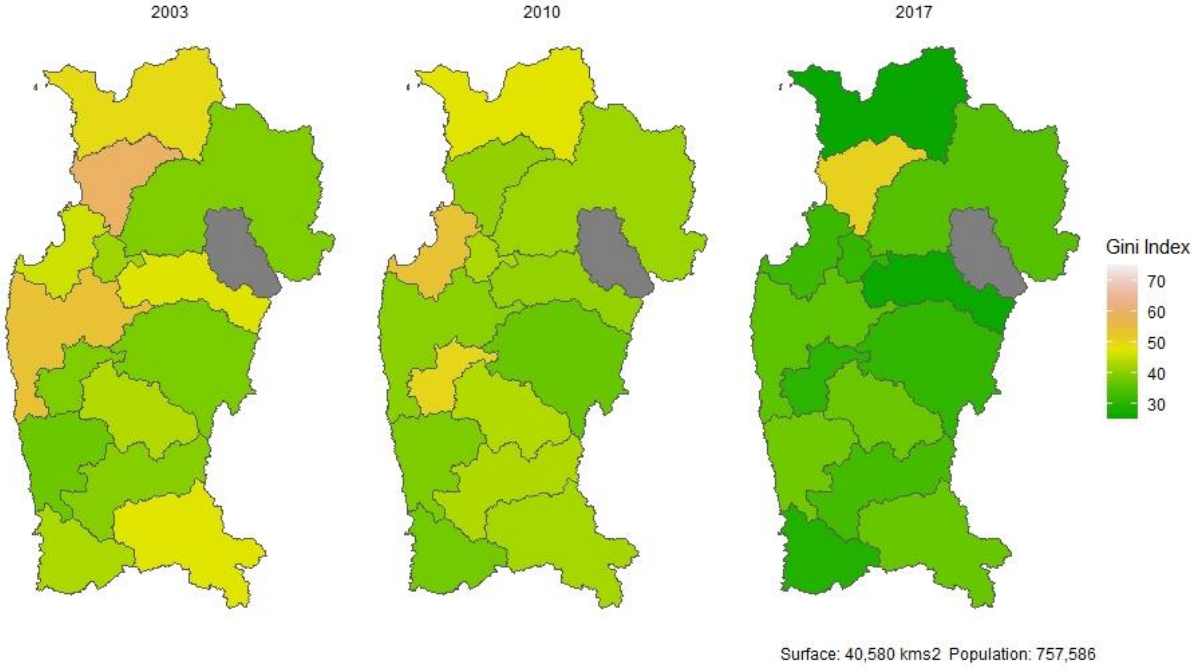


Figure G6. Economic inequality in the Valparaiso Region (V) by year.

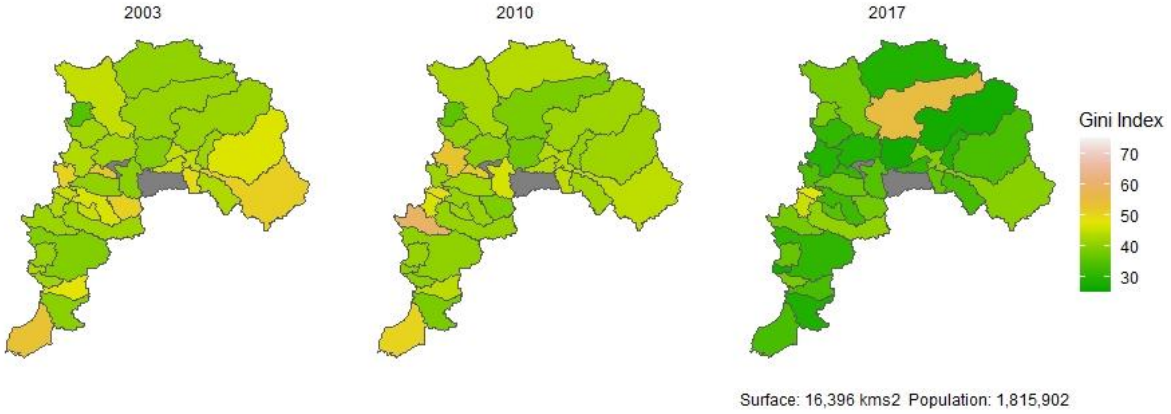


Figure G7. Economic inequality in the Metropolitan Region (XIII) by year.

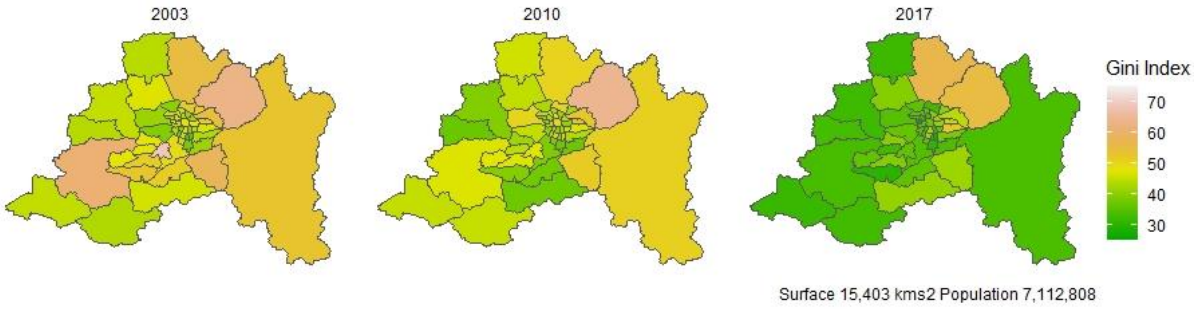


Figure G8. Economic inequality in the O'higgins region (VI) by year.

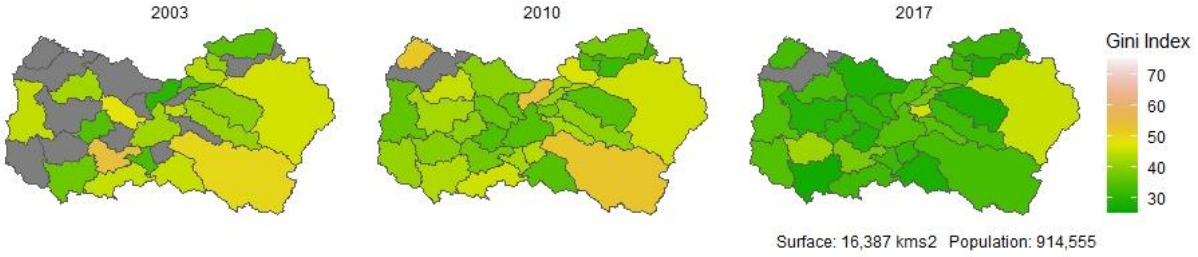


Figure G9. Economic inequality in the Maule region (VII) by year.

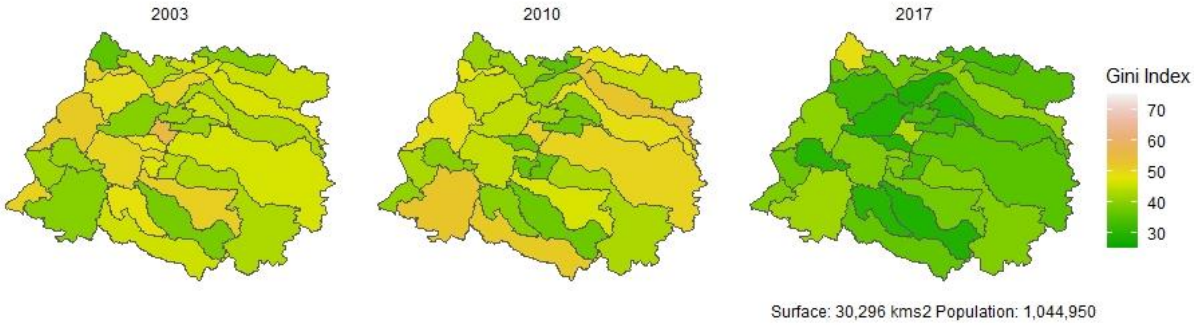


Figure G10. Economic inequality in the Biobio region (VIII) by year.

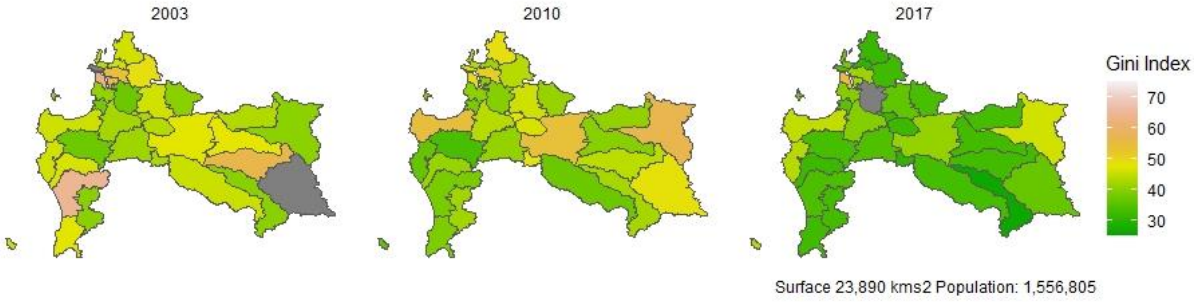


Figure G11. Economic inequality in Araucania region (IX) by year.

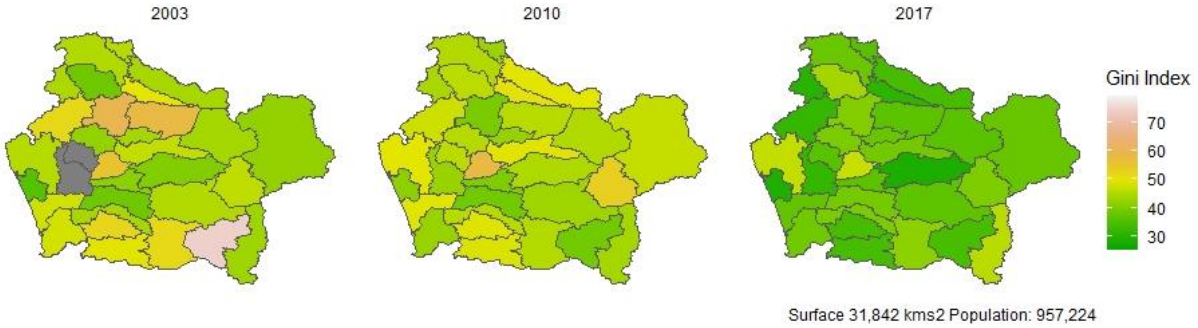


Figure G12. Economic inequality in Los Rios region (XIV) by year.

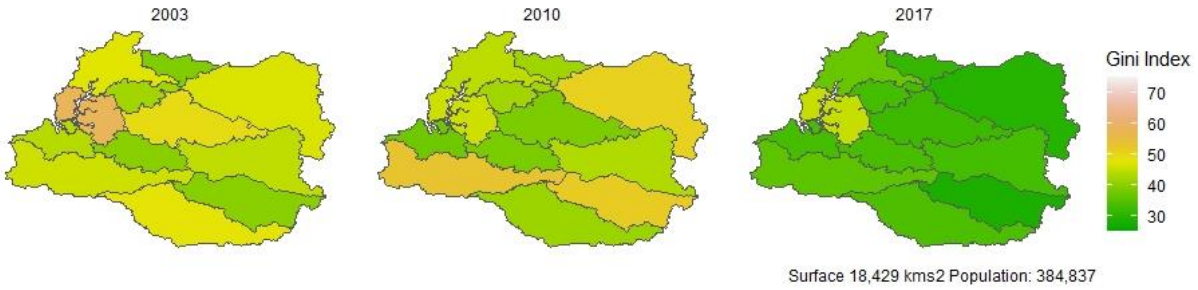


Figure G13. Economic inequality in Los Lagos region (X) by year.

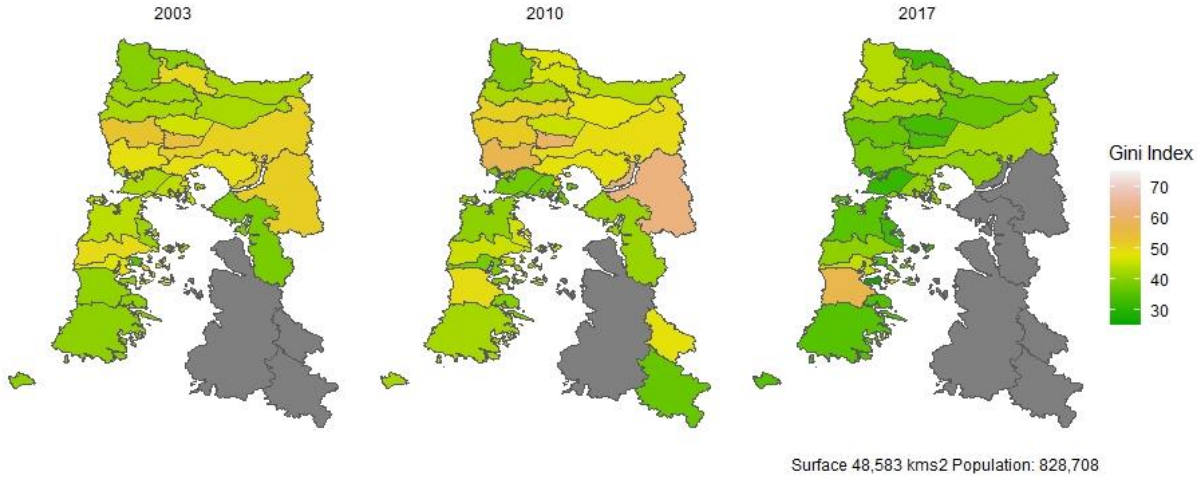


Figure G14. Economic inequality in Aysen region (XI) by year.

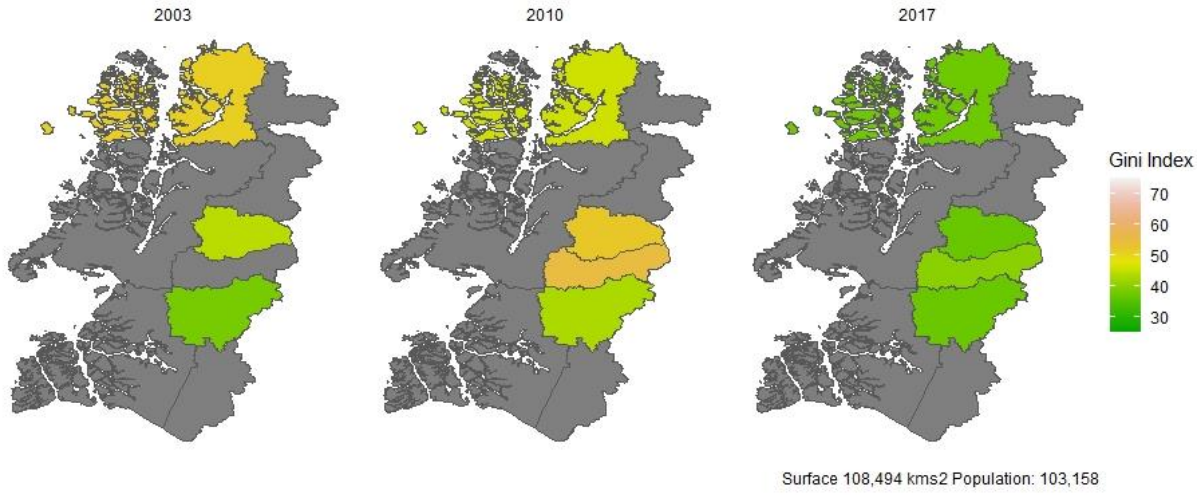
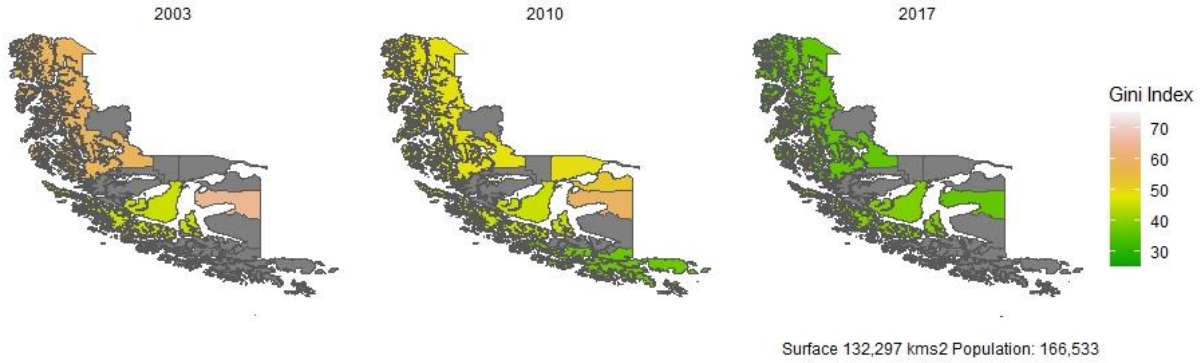


Figure G15. Economic inequality in Magallanes region (XII) by year.



Appendix H. Predicted probabilities by exposures

Figure H1. Boxplot of predicted probabilities of depressive symptoms based on the fully adjusted model by age groups and ENS.

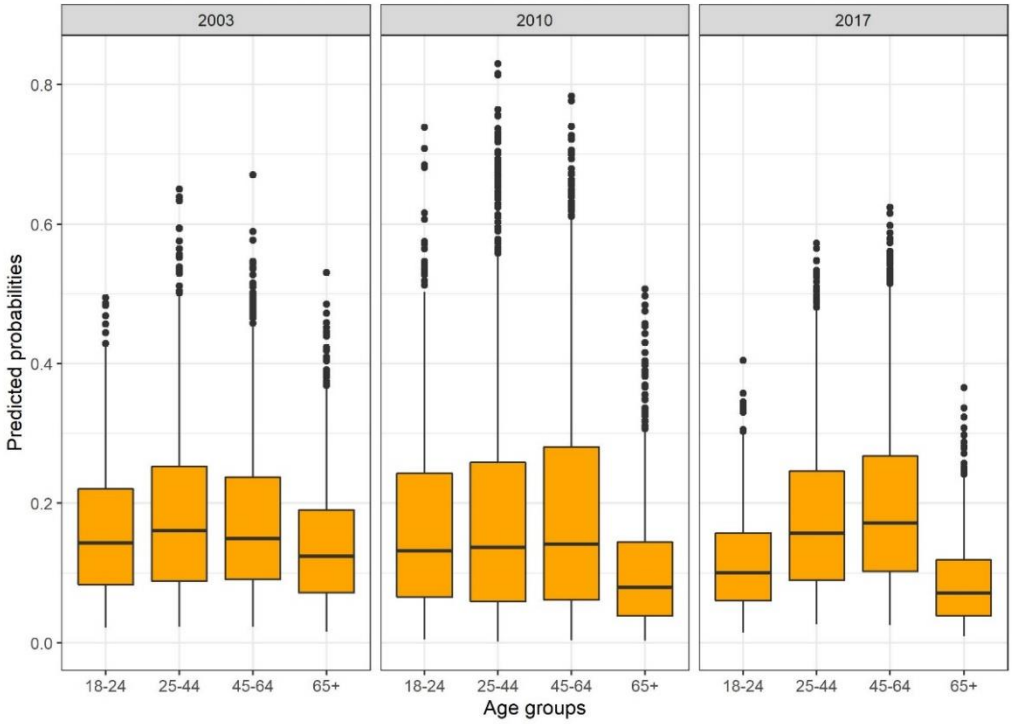


Figure H2. Boxplot of predicted probabilities of depressive symptoms based on the fully adjusted model by sex and ENS.

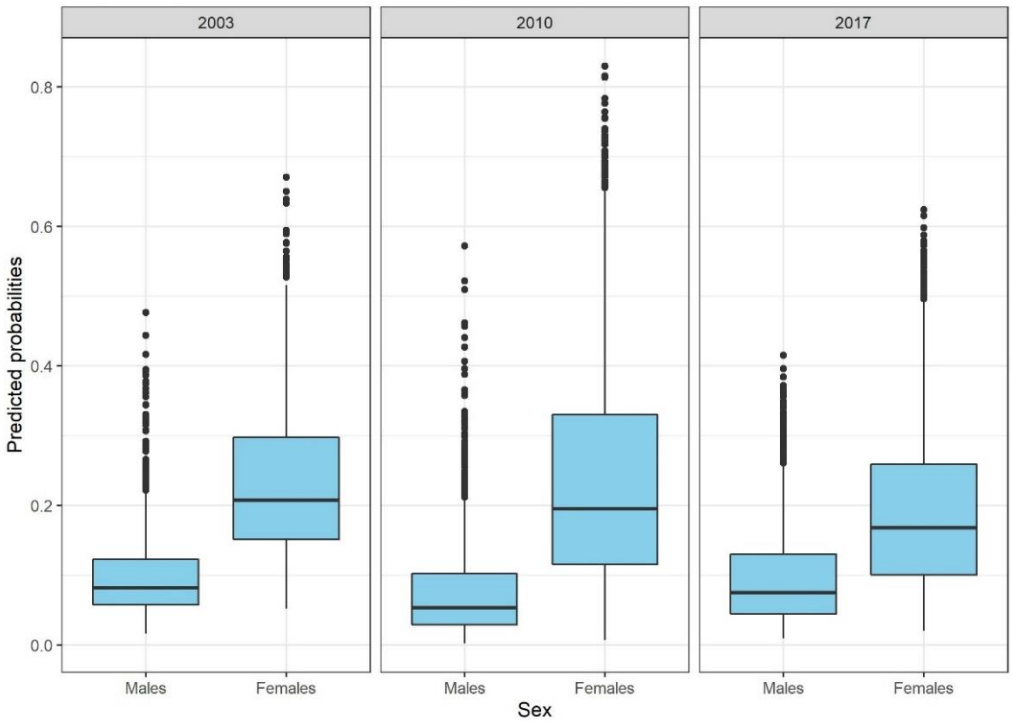


Figure H3. Boxplot of predicted probabilities of depressive symptoms based on the fully adjusted model by area of residence and ENS.

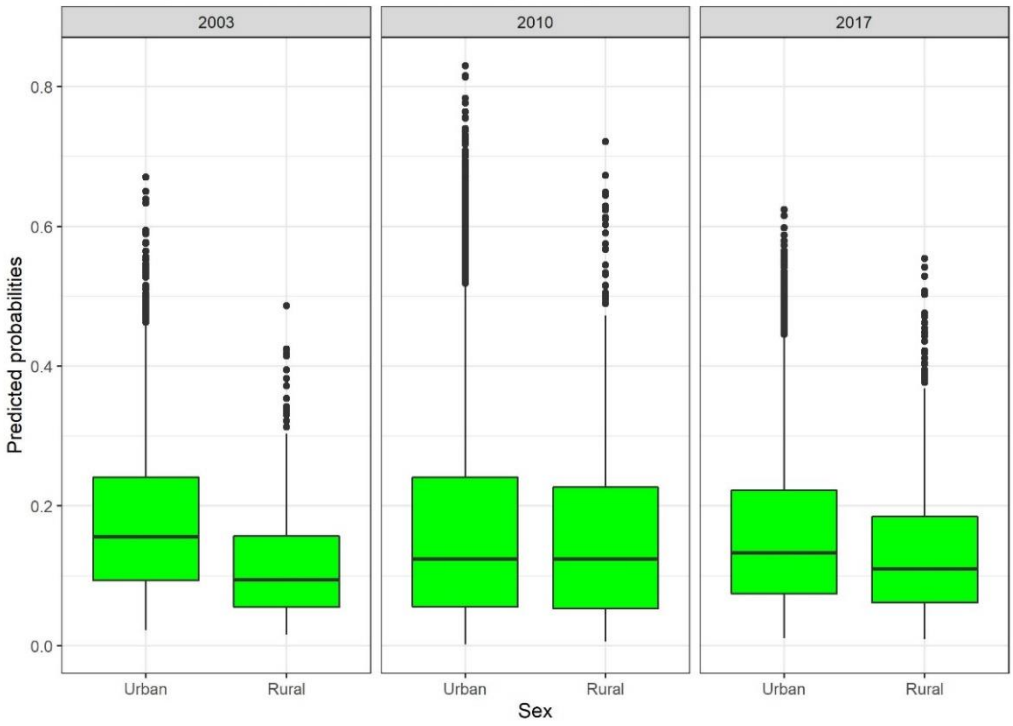


Figure H4. Boxplot of predicted probabilities of depressive symptoms based on the fully adjusted model by marital status and ENS.

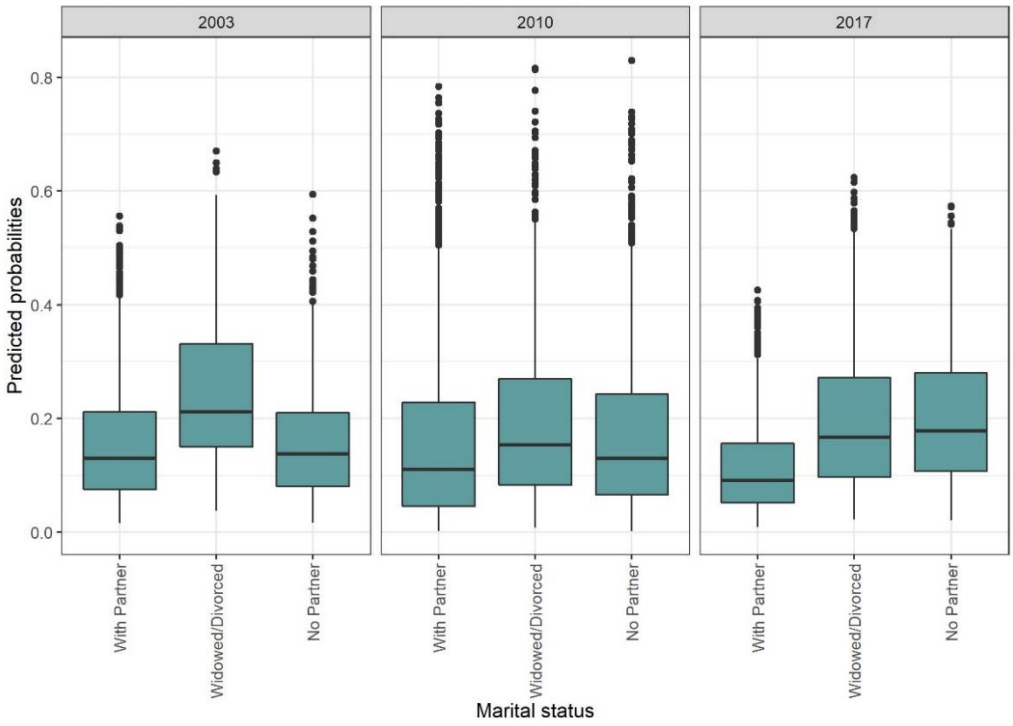


Figure H5. Boxplot of predicted probabilities of depressive symptoms based on the fully adjusted model by working status and ENS.

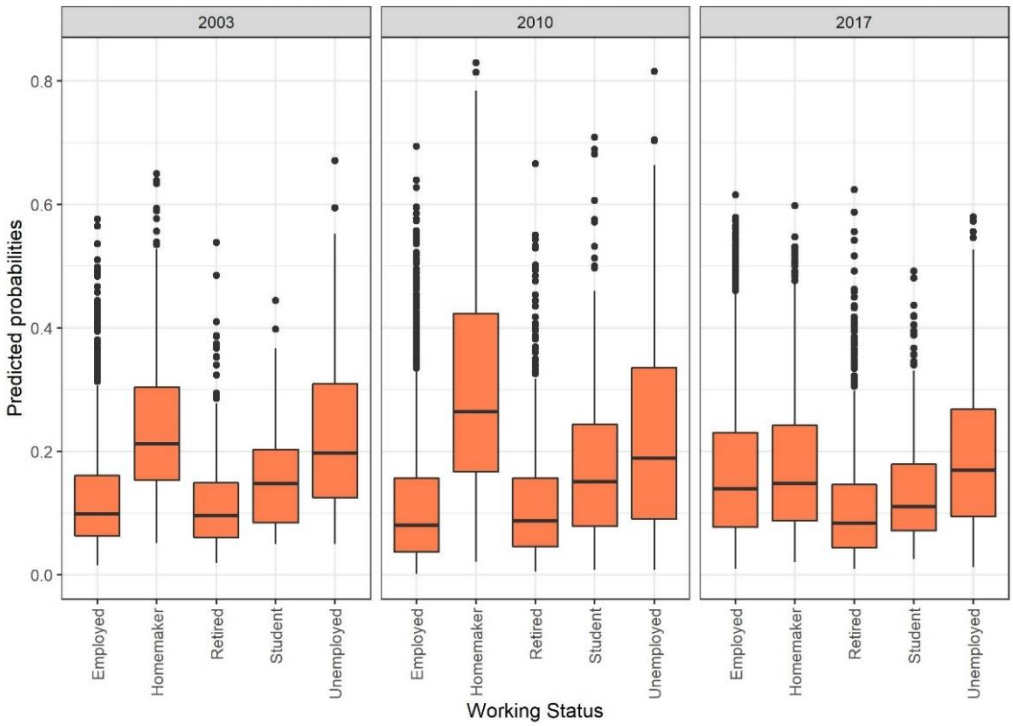


Figure H6. Boxplot of predicted probabilities of depressive symptoms based on the fully adjusted model by years of education and ENS.

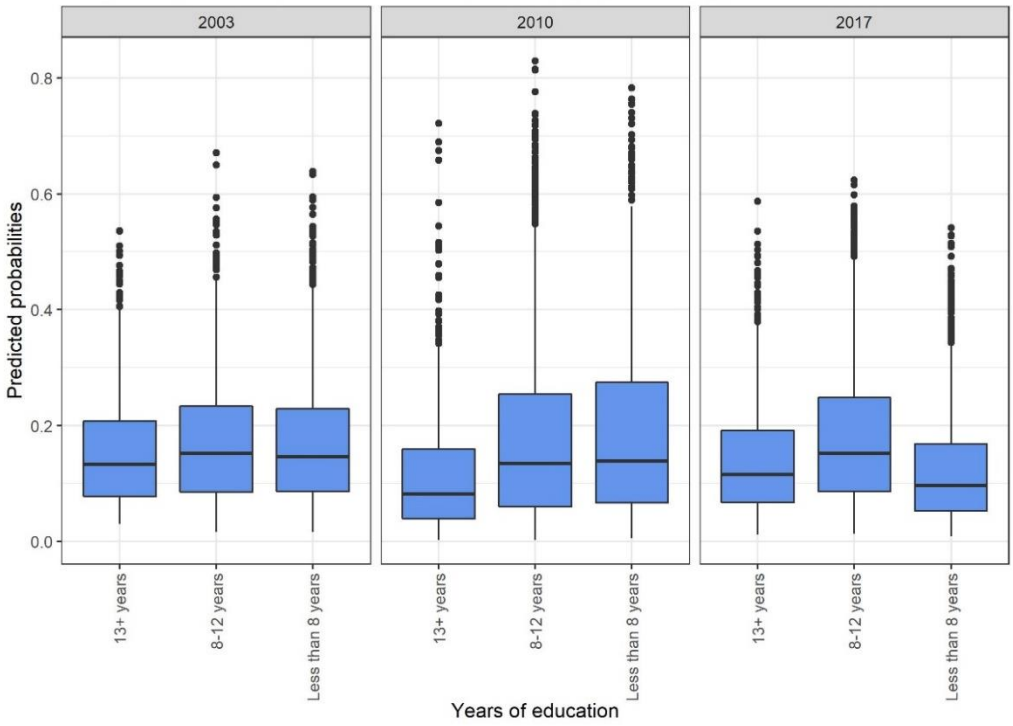


Figure H7. Boxplot of predicted probabilities of depressive symptoms based on the fully adjusted model by levels of reciprocity and ENS.

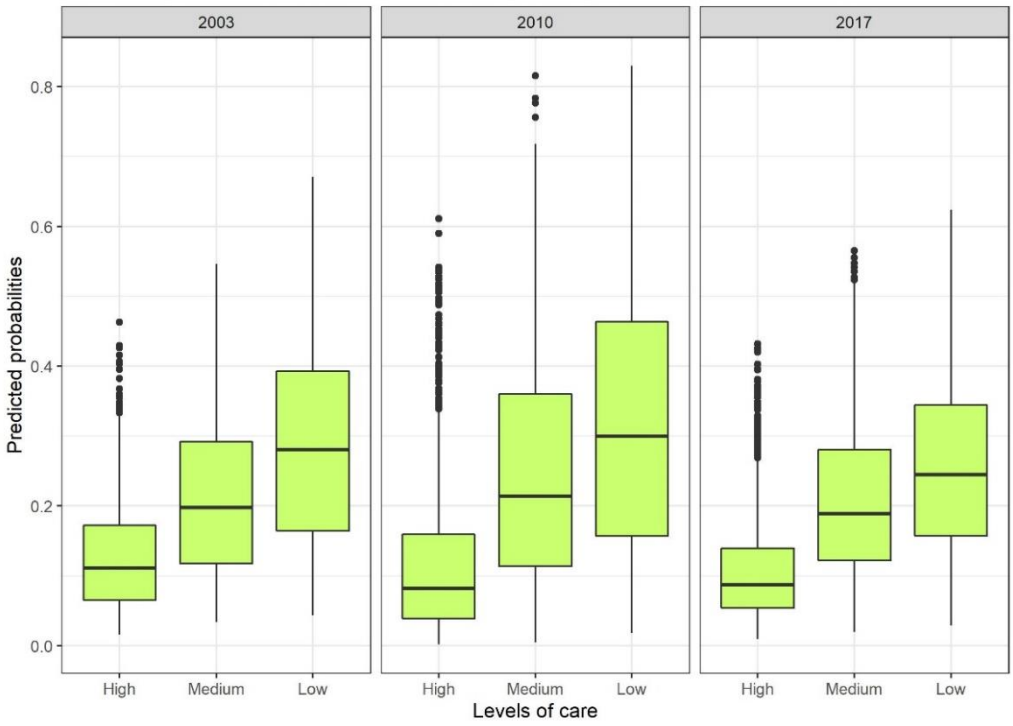


Figure H8. Boxplot of predicted probabilities of depressive symptoms based on the fully adjusted model by levels of trust and ENS.

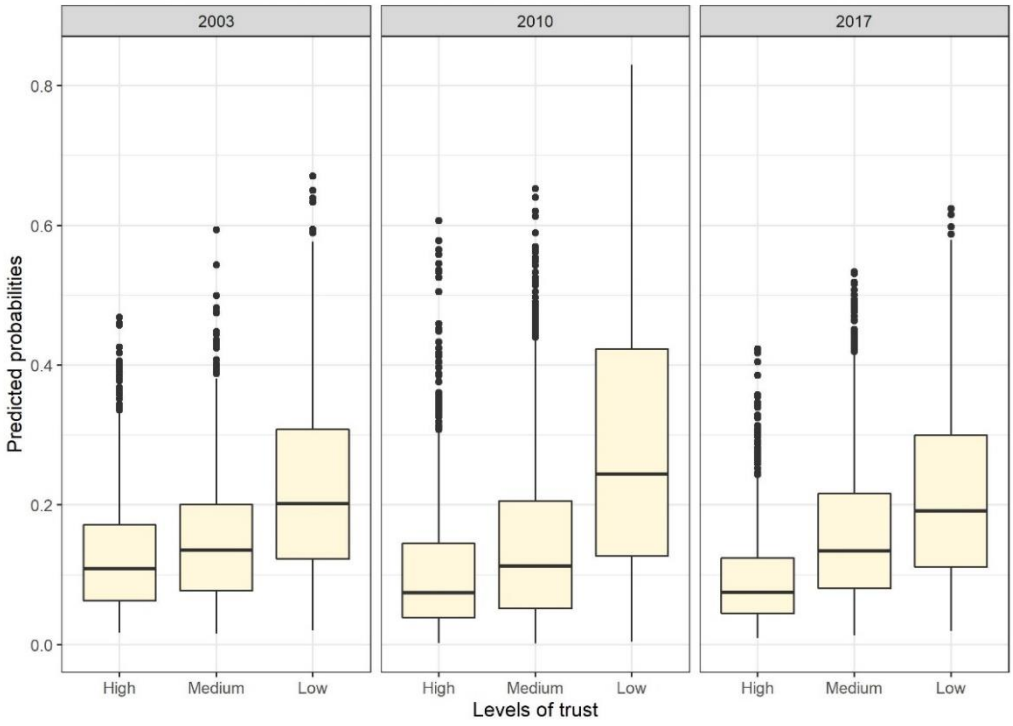


Figure H9. Boxplot of predicted probabilities of depressive symptoms based on the fully adjusted model by frequency of physical activity and ENS.

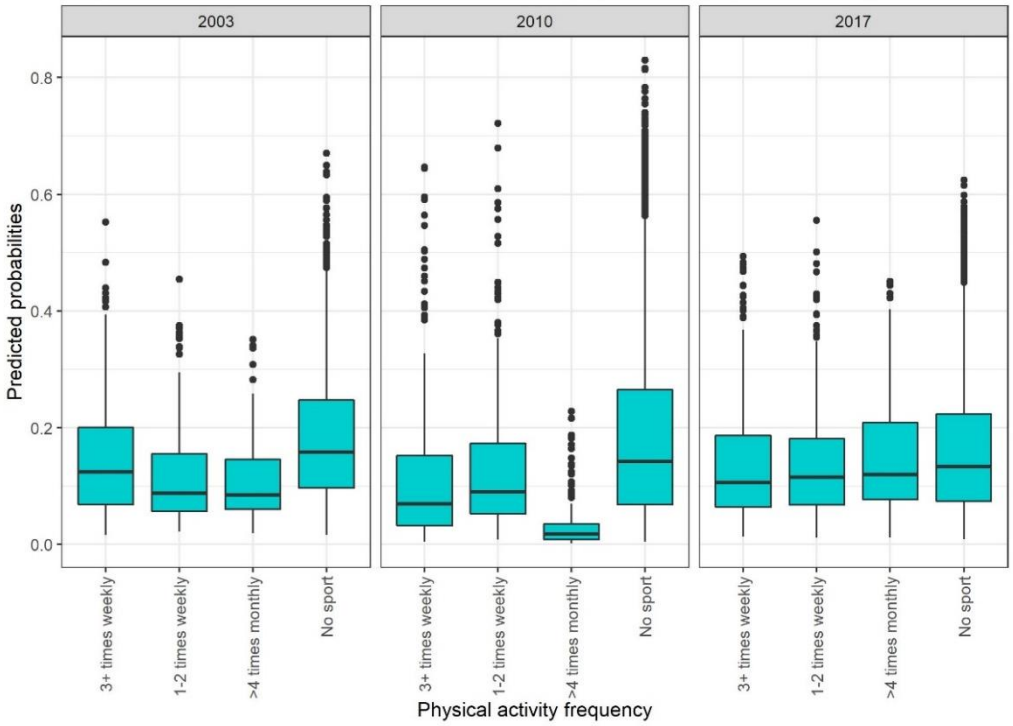


Figure H10. Boxplot of predicted probabilities of depressive symptoms based on the fully adjusted model by smoking status and ENS.

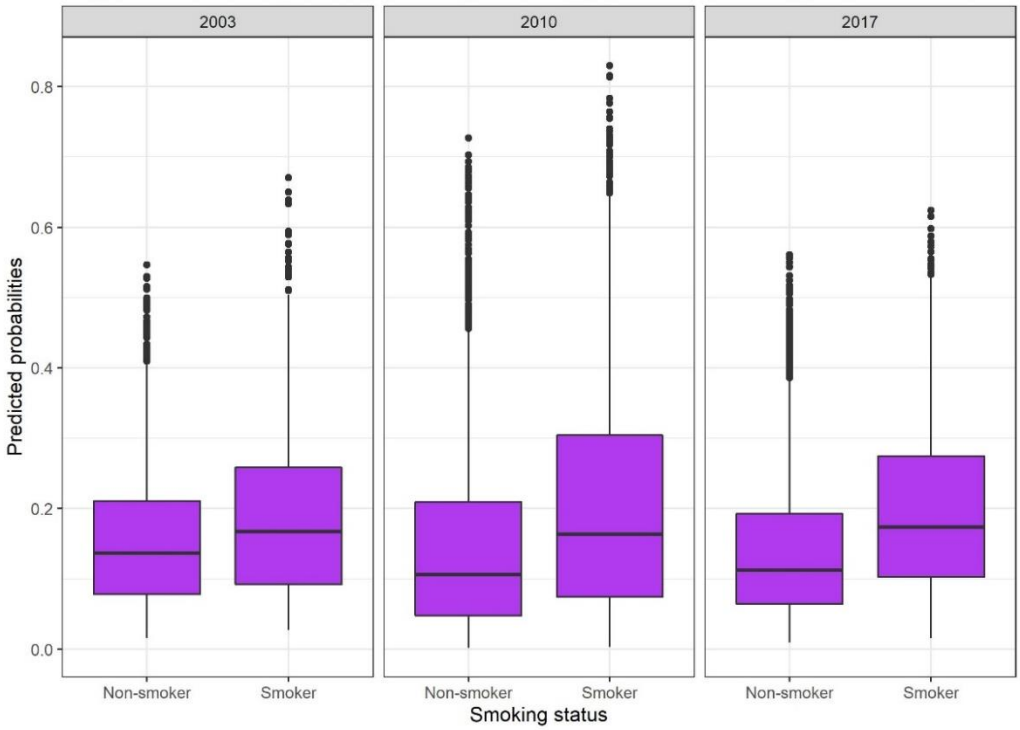


Figure H11. Predicted probabilities of depressive symptoms by MDD and ENS.

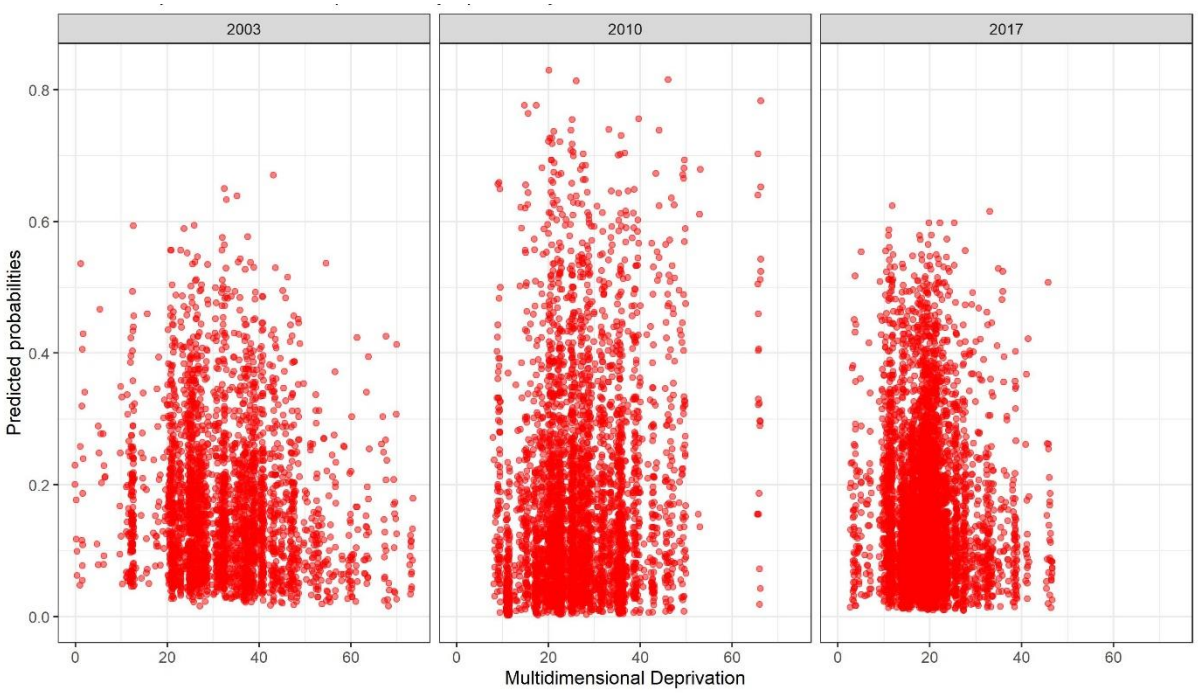
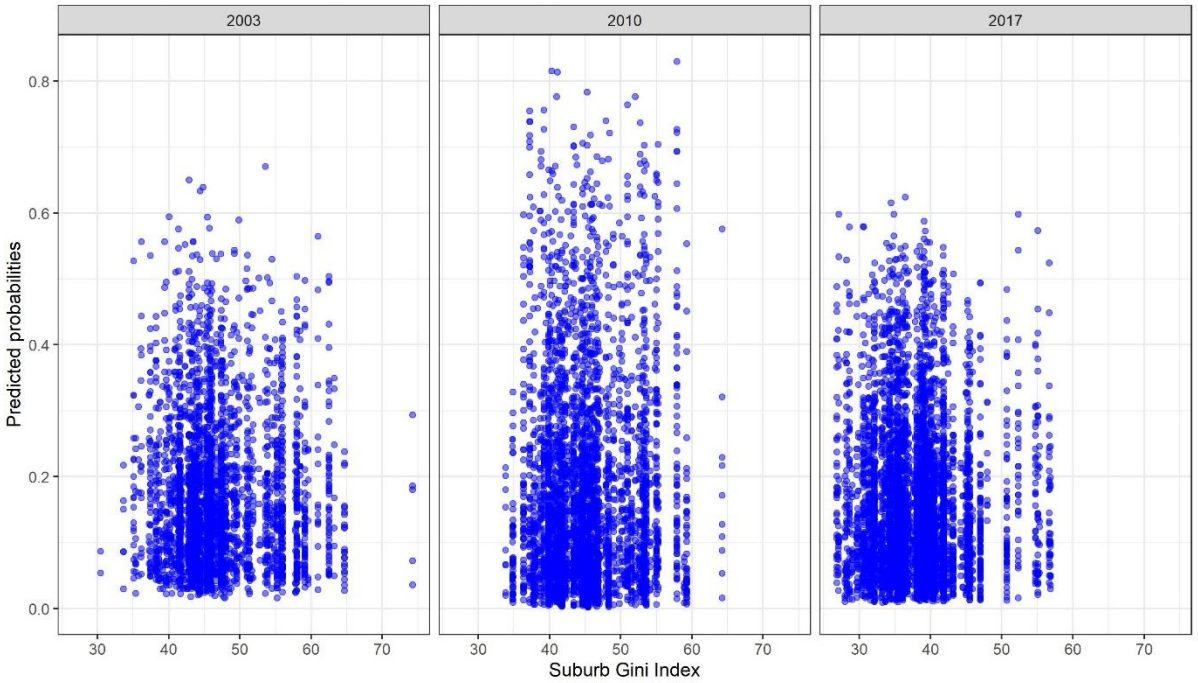


Figure H12. Predicted probabilities of depressive symptoms by Gini index and ENS.



Appendix I. Table I1. Comparison between analytical sample with excluded participants aged 18+ by year.

Variables	Categories	2003 ENS			2010 ENS			2017 ENS		
		Analytical %	Excluded %	□2 p-value	Analytical	Excluded %	□2 p-value	Analytical %	Excluded %	□2 p-value
Depressive symptoms	CIDI-SF<5	82.27	83.71	0.658	82.22	80.31	0.624	83.79	91.52	0.002
	CIDI-SF>=5	17.73	16.29		17.78	19.69		16.21	8.48	
Sex	Male	48.94	51.25	0.596	48.71	45.40	0.295	49.67	44.85	0.190
	Female	51.06	48.75		51.29	54.60		50.33	55.15	
Age groups (years)	18-24	18.49	13.14	0.004*	17.37	14.01	0.023	13.67	10.94	0.016*
	25-44	44.58	39.71		41.16	36.28		38.71	47.13	
	45-64	26.58	30.85		29.72	33.10		33.66	26.23	
	65+	10.34	16.30		11.75	16.61		13.96	15.69	
Area	Urban	86.65	83.52	0.466	86.86	88.48	0.410	88.59	91.65	0.093
	Rural	13.35	16.48		13.14	11.52		11.41	8.35	
Marital status	With Partner	57.24	59.98	0.078	58.61	54.58	0.271	52.93	51.90	0.412
	Widowed/Divorced	9.01	12.94		12.79	15.81		14.47	12.31	
	No partner	33.75	27.08		28.60	29.60		32.60	35.79	

* χ^2 for trend

Cntd. Table I1. Comparison between analytical sample with excluded participants aged 18+ by year.

Variables	Categories	2003 ENS			2010 ENS			2017 ENS		
		Analytical %	Excluded %	□2 p-value	Analytical	Excluded %	□2 p-value	Analytical %	Excluded %	□2 p-value
Working status	Employed	46.86	47.37	0.108	56.14	53.53	0.110	58.44	51.39	0.199
	Homemaker	25.28	23.28		19.84	19.77		16.83	21.81	
	Retired	6.88	12.29		9.40	14.33		11.83	13.63	
	Student	7.57	5.66		7.42	5.98		7.66	7.56	
	Unemployed	13.41	11.40		7.20	6.39		5.24	5.62	
Years of education	13+	18.09	29.62	0.039*	26.09	23.41	0.042	28.25	38.75	0.005*
	8-12	44.09	30.98		55.41	51.79		54.39	44.78	
	<8	37.82	39.39		18.50	24.80		17.35	16.46	
Reciprocity	High	61.18	58.46	0.693*	64.61	60.39	0.086	57.98	52.73	0.154*
	Medium	25.59	24.76		25.77	25.30		28.29	34.67	
	Low	13.24	16.78		9.62	14.31		13.74	12.60	
Trust	High	28.59	34.50	0.464*	30.71	24.76	0.176	29.81	22.37	0.001*
	Medium	38.73	33.96		43.12	46.22		40.63	52.96	
	Low	32.68	31.53		26.16	29.02		29.56	24.67	

* χ^2 for trend

Cntd. Table I1. Comparison between analytical sample with excluded participants aged 18+ by year.

Variables	Categories	2003 ENS			2010 ENS			2017 ENS		
		Analytical %	Excluded %	□2 p-value	Analytical	Excluded %	□2 p-value	Analytical %	Excluded %	□2 p-value
Physical activity	3+ weekly	10.80	7.45	0.140*	9.65	9.49	0.970	12.41	12.66	0.490*
	1-2 per week	11.94	7.03		9.10	9.65		10.70	11.78	
	<4 times monthly	6.74	5.85		5.52	6.09		3.44	5.44	
	No physical activity	70.53	79.68		75.74	74.76		73.45	70.12	
Smoking status	Non-smoker	55.89	58.46	0.560	57.65	61.04	0.307	67.31	61.65	0.094
	Smoker	44.11	41.54		42.35	38.96		32.69	38.35	
Regional Gini index (median)		54.00	55.00	0.029Ψ	51.00	51.00	0.331	42.00	41.00	0.383Ψ
Borough Gini index (median)		46.00	44.00	0.242Ψ	44.00	44.00	0.725	36.00	36.00	0.659Ψ
Borough MDD index (median)		28.00	23.00	0.017Ψ	26.00	26.00	0.197	20.00	18.00	0.020Ψ
Regional MDD index (median)		40.00	36.00	<0.001Ψ	38.00	38.00	0.220	31.00	31.00	0.403Ψ

* χ^2 for trend

Ψ Wilcoxon signed rank test

Appendix J. Table J1. Multilevel logistic fully adjusted regression model including the variable of income in the 2010 ENS.

Variables	Categories	OR	95% CI	p-value
Sex	Males	1.00		
	Females	2.19	1.50 — 3.18	<0.001
Age groups	18-24	1.00		
	25-44	1.35	0.78 — 2.32	0.3
	45-64	1.06	0.62 — 1.84	0.8
	65+	0.35	0.16 — 0.75	0.007
Area of residence	Urban	1.00		
	Rural	0.53	0.35 — 0.82	0.004
Marital status	With Partner	1.00		
	Widowed/Divorced	1.54	1.00 — 2.37	0.049
	No Partner	1.17	0.76 — 1.79	0.5
Working status	Employed	1.00		
	Homemaker	2.72	1.81 — 4.09	<0.001
	Retired	1.50	0.81 — 2.79	0.2
	Student	2.37	1.04 — 5.40	0.040
	Unemployed	2.64	1.37 — 5.06	0.004
Years of education	13+	1.00		
	8-12	1.30	0.82 — 2.06	0.3
	Less than 8	1.68	0.90 — 3.15	0.10
Reciprocity	High	1.00		
	Medium	2.68	1.90 — 3.79	<0.001
	Low	2.41	1.63 — 3.55	<0.001
Trust	High	1.00		
	Medium	1.09	0.71 — 1.65	0.7
	Low	2.07	1.31 — 3.27	0.002

Cntd. Table J1. Multilevel logistic fully adjusted regression model including the variable of income in the 2010 ENS.

Variables	Categories	OR	95% CI	p-value
Physical activity	3+ times weekly	1.00		
	1-2 times weekly	1.62	0.69 — 3.79	0.3
	>4 times monthly	0.29	0.12 — 0.72	0.008
	No sport	1.64	0.85 — 3.16	0.14
Smoking status	Non-smoker	1.00		
	Smoker	1.62	1.17 — 2.25	0.004
Bands of income	Less than $134.999	1.00		
	$135.000-295.999	0.61	0.39 — 0.95	0.028
	$296.000-480.999	0.70	0.44 — 1.11	0.13
	$481.000-764.999	1.01	0.57 — 1.79	0.9
	$765.000 or more	0.49	0.20 — 1.24	0.13
Regional Gini index	1-unit increase	1.08	1.04 — 1.12	<0.001
Regional MDD	1% increase	1.06	1.01 — 1.12	0.032

Appendix K. Table K1. Multilevel logistic regression model including all potentially relevant variables based on the 2017 ENS

Variables	Categories	OR	95% CI	p-value
Sex	Males	1.00		
	Females	2.16	1.44 — 3.23	<0.001
Age groups	18-24	1.00		
	25-44	2.80	1.41 — 5.59	0.003
	45-64	3.59	1.79 — 7.18	<0.001
	65+	1.40	0.55 — 3.56	0.5
Area of residence	Urban	1.00		
	Rural	0.79	0.53 — 1.20	0.3
Marital status	With Partner	1.00		
	Widowed/Divorced	2.01	1.20 — 3.38	0.008
	No Partner	2.09	1.40 — 3.10	<0.001
Working Status	Employed	1.00		
	Homemaker	1.08	0.65 — 1.79	0.8
	Retired	1.08	0.52 — 2.23	0.8
	Student	1.18	0.52 — 2.66	0.7
	Unemployed	0.97	0.51 — 1.83	0.9
Years of education	13+	1.00		
	8-12	1.06	0.64 — 1.73	0.8
	Less than 8	0.70	0.34 — 1.44	0.3
Reciprocity	High	1.00		
	Medium	1.92	1.24 — 2.97	0.004
	Low	2.26	1.45 — 3.53	<0.001

Cntd. Table K1. Multilevel logistic regression model including all potentially relevant variables based on the 2017 ENS

Variables	Categories	OR	95% CI	p-value
Trust	High	1.00		
	Medium	1.88	1.17 — 3.02	0.009
	Low	1.92	1.18 — 3.13	0.009
Physical activity	3+ times weekly	1.00		
	1-2 times weekly	1.35	0.61 — 2.97	0.5
	>4 times monthly	0.68	0.24 — 1.94	0.5
	No sport	0.86	0.45 — 1.65	0.7
Smoking status	Non-smoker	1.00		
	Smoker	1.35	0.96 — 1.91	0.088
Group membership	Yes	1.00		
	No	1.13	0.73 — 1.74	0.6
Financial strain	Little or nothing	1.00		
	Moderate	1.03	0.64 — 1.67	0.9
	High or a lot	3.20	1.96 — 5.22	<0.001
Bands of income	Less than $134.999	1.00		
	$135.000-295.999	0.61	0.38 — 0.98	0.041
	$296.000-480.999	0.94	0.55 — 1.62	0.8
	$481.000-764.999	0.76	0.44 — 1.33	0.3
	$765.000 or more	0.61	0.29 — 1.28	0.2
Household Structure Index	1-unit increase	0.94	0.81 — 1.10	0.5
Overcrowding	No	1.00		
	Yes	1.87	1.04 — 3.36	0.036

Cntd. Table K1. Multilevel logistic regression model including all potentially relevant variables based on the 2017 ENS

Variables	Categories	OR	95% CI	p-value
Health insurance	Public	1.00		
	Private	1.09	0.59 — 2.01	0.8
	None	1.11	0.45 — 2.73	0.8
Regional Gini	1-unit increase	1.01	0.95 — 1.08	0.7
Regional MDD	1% increase	0.97	0.92 — 1.03	0.3

Appendix L. Fully adjusted models with different cut-off for CIDI-SF based on the 2017 ENS.

Table L1. Multilevel logistic regression fully adjusted model using CIDI-SF ≥ 4 as cut-off.

Variables	Categories	OR	95% CI	p-value
Sex	Males	1.00		
	Females	2.24	1.62 — 3.08	<0.001
Age groups (years)	18-24	1.00		
	25-44	1.54	0.85 — 2.78	0.2
	45-64	1.60	0.82 — 3.11	0.2
	65+	0.76	0.33 — 1.76	0.5
Area of residence	Urban	1.00		
	Rural	0.88	0.60 — 1.29	0.5
Marital status	With Partner	1.00		
	Widowed/Divorced	1.86	1.20 — 2.88	0.006
	No Partner	1.83	1.28 — 2.63	0.001
Working status	Employed	1.00		
	Homemaker	0.96	0.66 — 1.41	0.8
	Retired	1.05	0.58 — 1.89	0.9
	Student	1.02	0.50 — 2.08	0.9
	Unemployed	1.04	0.62 — 1.74	0.9
Years of education	13+	1.00		
	8-12	1.06	0.72 — 1.54	0.8
	Less than 8	0.77	0.43 — 1.37	0.4
Reciprocity	High	1.00		
	Medium	1.87	1.37 — 2.54	<0.001
	Low	1.89	1.28 — 2.78	0.001

Cntd. Table L1. Multilevel logistic regression fully adjusted model using CIDI-SF ≥ 4 as cut-off.

Variables	Categories	OR	95% CI	p-value
Trust	High	1.00		
	Medium	1.76	1.17 — 2.65	0.007
	Low	2.25	1.45 — 3.49	<0.001
Physical activity	3+ times weekly	1.00		
	1-2 times weekly	1.16	0.59 — 2.27	0.7
	>4 times monthly	1.57	0.67— 3.69	0.3
	No sport	1.36	0.76 — 2.44	0.3
Smoking status	Non-smoker	1.00		
	Smoker	1.26	0.93 — 1.70	0.13
Regional Gini index	1-unit increase	1.02	0.97 — 1.07	0.6
Regional MDD	1% increase	0.96	0.92 — 1.01	0.13

Table L2. Multilevel logistic regression fully adjusted model using CIDI-SF ≥ 6 as cut-off.

Variables	Categories	OR	95% CI	p-value
Sex	Males	1.00		
	Females	1.92	1.25 — 2.95	0.003
Age groups (years)	18-24	1.00		
	25-44	2.19	0.93 — 5.15	0.071
	45-64	2.49	1.02 — 6.07	0.046
	65+	0.62	0.20 — 1.92	0.4
Area of residence	Urban	1.00		
	Rural	0.83	0.51 — 1.34	0.4
Marital status	With Partner	1.00		
	Widowed/Divorced	1.87	1.02 — 3.43	0.043
	No Partner	2.18	1.37 — 3.49	0.001
Working status	Employed	1.00		
	Homemaker	0.94	0.54 — 1.64	0.8
	Retired	1.25	0.60 — 2.58	0.6
	Student	1.39	0.54 — 3.62	0.5
	Unemployed	1.46	0.83 — 2.58	0.2
Years of education	13+ years	1.00		
	8-12 years	1.06	0.62 — 1.81	0.8
	Less than 8 years	0.77	0.36 — 1.66	0.5
Reciprocity	High	1.00		
	Medium	2.43	1.52 — 3.88	<0.001
	Low	2.58	1.45 — 4.58	0.001

Cntd. Table L2. Multilevel logistic regression fully adjusted model using CIDI-SF ≥ 6 as cut-off.

Variables	Categories	OR	95% CI	p-value
Trust	High	1.00		
	Medium	1.69	0.95 — 2.99	0.072
	Low	2.62	1.45 — 4.75	0.001
Physical activity	3+ times weekly	1.00		
	1-2 times weekly	0.83	0.37 — 1.88	0.7
	>4 times monthly	1.40	0.43 — 4.55	0.6
	No sport	0.99	0.52 — 1.91	0.9
Smoking status	Non-smoker	1.00		
	Smoker	1.31	0.87 — 1.98	0.2
Regional Gini index	1-unit increase	1.04	0.96 — 1.12	0.3
Regional MDD	1% increase	0.97	0.90 — 1.05	0.4

Appendix M. Linear model using CIDI-SF score as a continuous outcome and regression's assumptions examination.

Table M1. Multilevel linear regression model assessing the association between SDMH and depressive symptoms as a continuous outcome in the 2017 ENS.

Variables	Categories	β	95% CI	p-value
Sex	Males	Ref.		
	Females	0.66	0.40 — 0.92	<0.001
Age groups (years)	18-24	Ref.		
	25-44	0.31	-0.18 — 0.80	0.2
	45-64	0.35	-0.19 — 0.90	0.2
	65+	-0.21	-0.82 — 0.41	0.5
Area of residence	Urban	Ref.		
	Rural	-0.15	-0.41 — 0.11	0.3
Marital status	With Partner	Ref.		
	Widowed/Divorced	0.51	0.11 — 0.90	0.012
	No Partner	0.57	0.24 — 0.90	<0.001
Working status	Employed	Ref.		
	Homemaker	-0.04	-0.42 — 0.34	0.8
	Retired	0.07	-0.35 — 0.50	0.7
	Student	-0.11	-0.68 — 0.46	0.7
	Unemployed	-0.06	-0.52 — 0.40	0.8
Years of education	13+ years	Ref.		
	8-12 years	0.10	-0.19 — 0.39	0.5
	Less than 8 years	-0.09	-0.51 — 0.34	0.7

Cntd. Table M1. Multilevel linear regression model assessing the association between SDMH and depressive symptoms as a continuous outcome in the 2017 ENS.

Variables	Categories	β	95% CI	p-value
Reciprocity	High	Ref.		
	Medium	0.57	0.30 — 0.84	<0.001
	Low	0.66	0.28 — 1.00	<0.001
Trust	High	Ref.		
	Medium	0.28	0.04 — 0.52	0.021
	Low	0.52	0.20 — 0.84	0.001
Physical activity	3+ times weekly	Ref.		
	1-2 times weekly	0.09	-0.34 — 0.52	0.7
	>4 times monthly	0.13	-0.49 — 0.76	0.7
	No sport	0.15	-0.24 — 0.53	0.5
Smoking status	Non-smoker	Ref.		
	Smoker	0.22	-0.03 — 0.46	0.080
Regional Gini index	1-unit increase	0.02	-0.02 — 0.06	0.4
Regional MDD	1% increase	-0.03	-0.07 — 0.00	0.079

Figure M1. Scatterplot of residuals versus fitted values of the fully adjusted multilevel linear regression of the 2017 ENS.

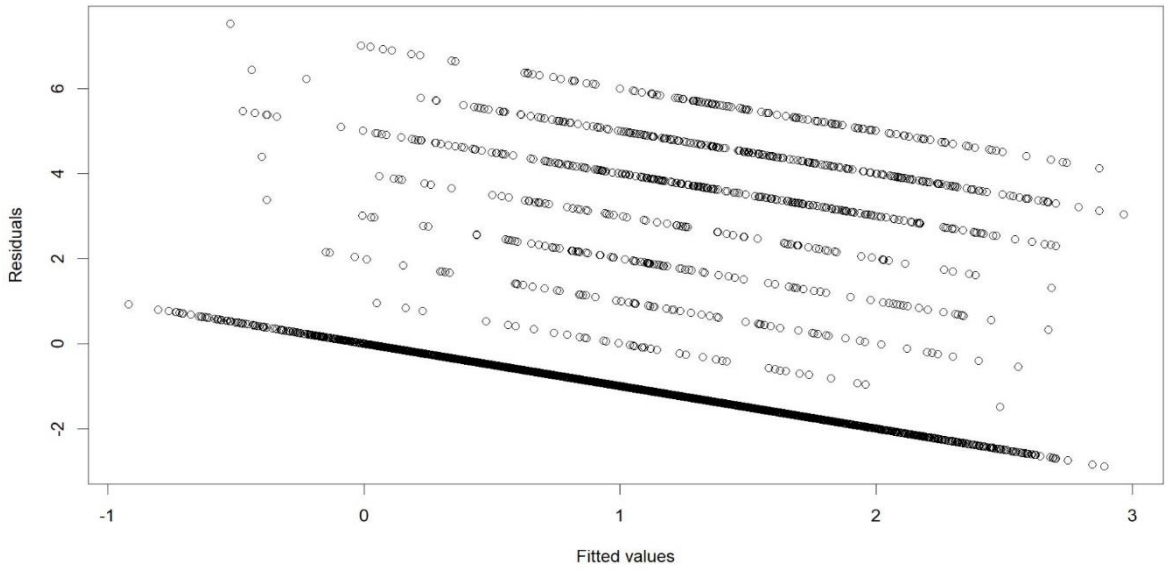


Figure M2. Scatterplot of standardized residuals of the fully adjusted multilevel linear regression of the 2017 ENS for each observation.

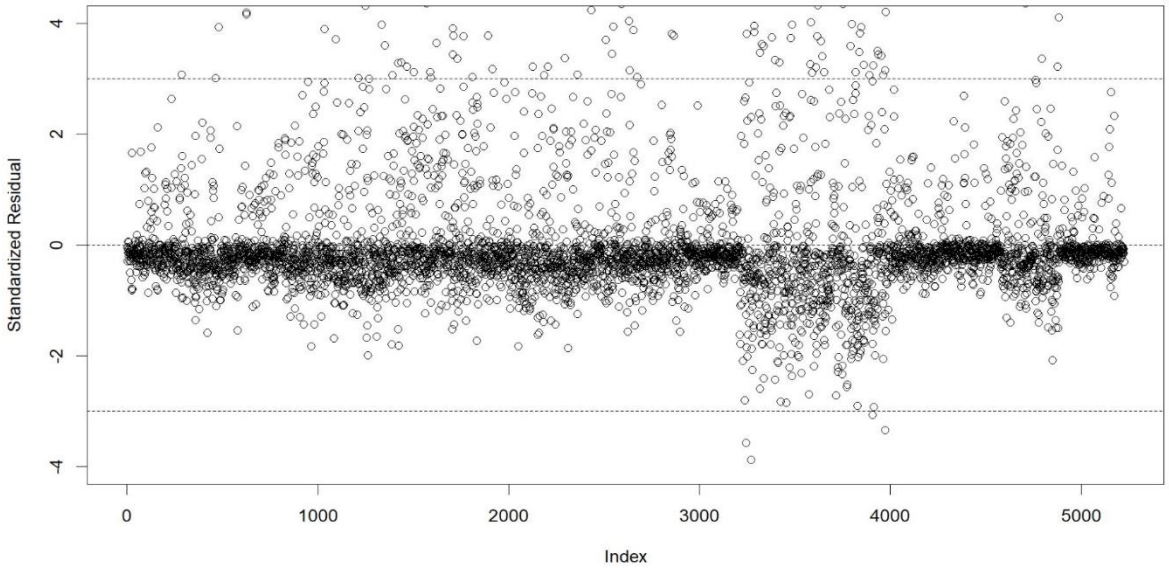
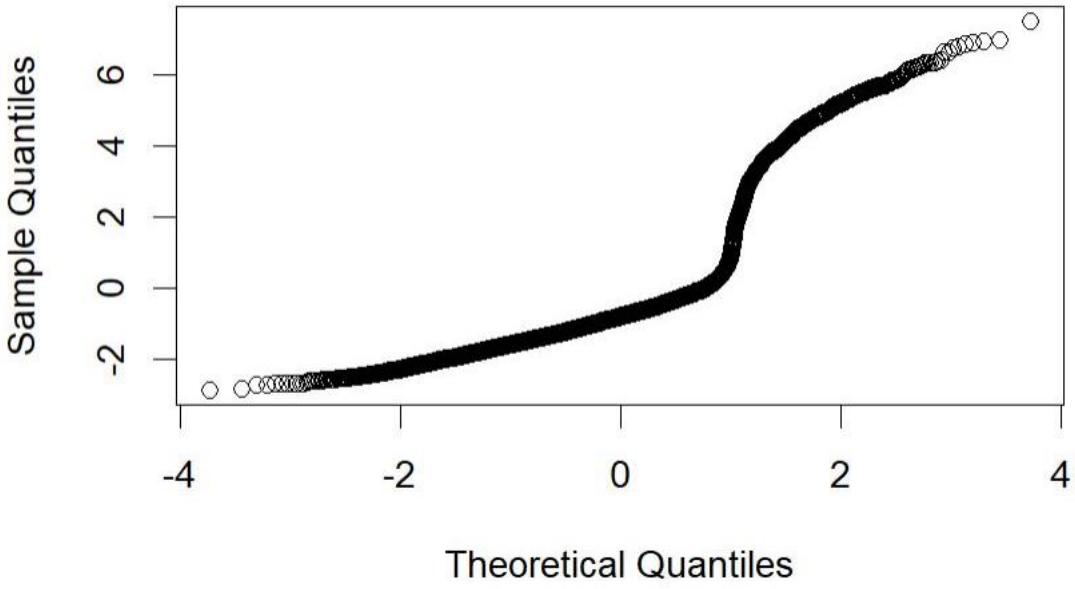
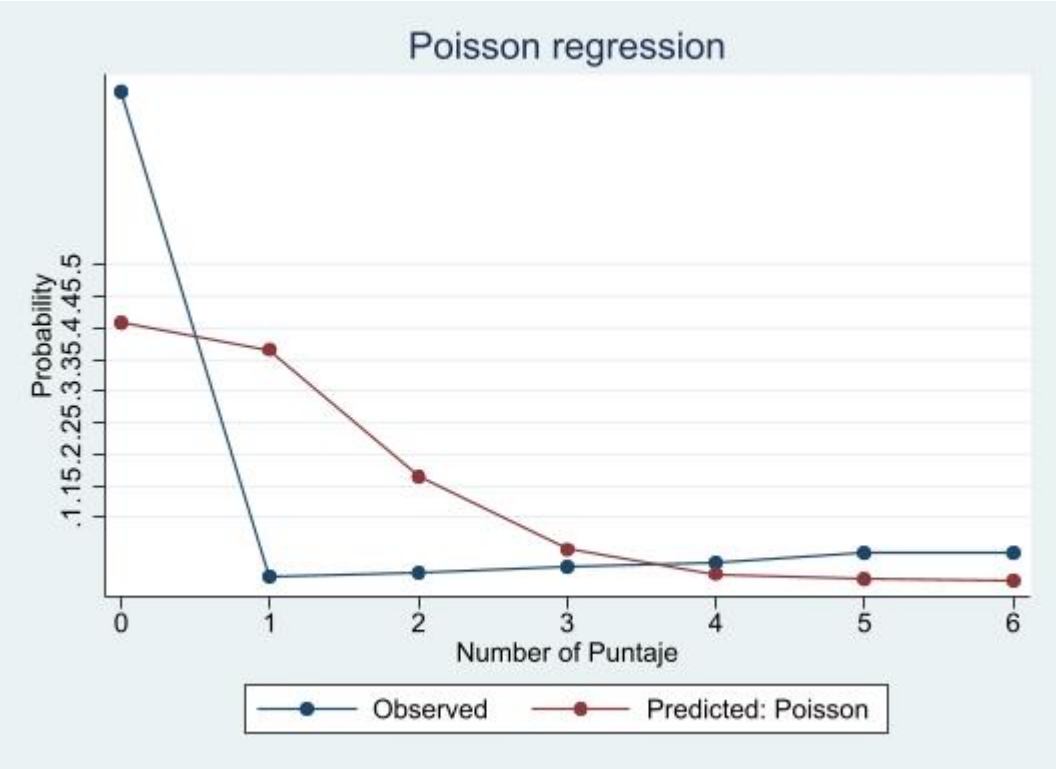


Figure M3. QQ plot of standardized residuals of the fully adjusted multilevel linear regression of the 2017 ENS.



Appendix N. Poisson model using CIDI-SF as a count outcome.

Figure N1. Distribution of observed CIDI-SF distribution compared to predicted Poisson distribution.



Appendix O. Table O1. Fully adjusted models including adjustments for each domain of the multidimensional deprivation index in the nationally representative Chilean samples in the 2003-2017 period.

Characteristic	2003 ENS			2010 ENS			2017 ENS		
	OR	95% CI	p-value	OR	95% CI	p-value	OR	95% CI	p-value
M1*: 1% increase in work deprivation	1.00	0.98, 1.02	0.9	1.07	1.03, 1.10	**<0.001**	0.97	0.92, 1.01	0.2
M2*: 1% increase in educational deprivation	0.99	0.98, 1.00	0.2	1.00	0.99, 1.02	0.8	0.99	0.97, 1.02	0.6
M3*: 1% increase in health deprivation	1.00	0.97, 1.04	0.8	0.99	0.97, 1.02	0.7	1.09	1.02, 1.16	**0.008**
M4*: 1% increase in housing deprivation	1.00	0.98, 1.01	0.4	1.00	0.98, 1.02	0.7	0.94	0.90, 0.97	**<0.001**

*Models adjusted by age, sex, area of residence, marital status, working status, education, reciprocity, trust, physical activity and smoking status

Appendix P. Table P1. Fully adjusted model* mutually adjusted for each domain of the multidimensional deprivation index in the nationally representative Chilean samples in the 2003-2017 period.

Variable	2003 ENS			2010 ENS			2017 ENS		
	OR	95% CI	p-value	OR	95% CI	p-value	OR	95% CI	p-value
1% increase in work deprivation	1.02	0.98, 1.06	0.3	1.09	1.06, 1.13	**<0.001**	1.03	0.97, 1.09	0.3
1% increase in educational deprivation	0.98	0.95, 1.00	0.075	1.01	0.97, 1.05	0.7	1.08	1.05, 1.12	**<0.001**
1% increase in health deprivation	0.98	0.94, 1.03	0.5	1.00	0.96, 1.05	0.9	1.16	1.08, 1.25	**<0.001**
1% increase in housing deprivation	1.01	0.98, 1.03	0.7	1.02	0.99, 1.05	0.3	0.90	0.86, 0.95	**<0.001**

*Model adjusted by age, sex, area of residence, marital status, working status, education, reciprocity, trust, physical activity and smoking status

Appendix Q. Multilevel logistic stratified models by sex and education by ENS.

Table Q1. Fully adjusted multilevel logistic regression model by proximal and distal determinants stratified by sex for the 2003 ENS.

Variables	Categories	Females 2003 ENS N=1,710			Males 2003 ENS N=1,429		
		OR	95% CI	p-value	OR	95% CI	p-value
Age groups (years)	18-24	1.00			1.00		
	25-44	1.30	0.72 2.37	0.4	0.64	0.29, 1.40	0.3
	45-64	0.94	0.54, 1.64	0.8	0.64	0.22, 1.87	0.4
	65+	0.65	0.30, 1.43	0.3	0.28	0.07, 1.10	0.069
Area of residence	Urban	1.00			1.00		
	Rural	0.55	0.32, 0.95	0.032	0.74	0.35, 1.60	0.4
Marital status	With Partner	1.00			—		
	Widowed/Divorced	1.43	0.86, 2.36	0.2	1.96	0.61, 6.35	0.3
	No Partner	0.80	0.46, 1.39	0.4	1.06	0.54, 2.07	0.9
Working status	Employed	1.00			1.00		
	Homemaker	1.30	0.82, 2.07	0.3	No observations		
	Retired	1.46	0.56, 3.79	0.4	1.38	0.50, 3.86	0.5
	Student	0.96	0.39, 2.40	0.9	1.87	0.46, 7.62	0.4
	Unemployed	1.80	1.00, 3.25	0.050	2.12	1.15, 3.91	0.017
Years of education	13+	1.00			1.00		
	8-12	1.00	0.53, 1.88	0.9	0.83	0.32, 2.12	0.7
	Less than 8	0.91	0.44, 1.88	0.8	0.91	0.33, 2.53	0.9
Reciprocity	High	1.00			1.00		
	Medium	1.91	1.28, 2.84	0.002	1.98	1.01, 3.88	0.046
	Low	1.96	1.21, 3.16	0.006	4.31	1.98, 9.40	<0.001

Cntd. Table Q1. Fully adjusted multilevel logistic regression model by proximal and distal determinants stratified by sex for the 2003 ENS.

Variables	Categories	Females 2003 ENS N=1,710			Males 2003 ENS N=1,429		
		OR	95% CI	p-value	OR	95% CI	p-value
Trust	High	1.00			1.00		
	Medium	1.39	0.78, 2.46	0.3	0.74	0.35, 1.59	0.4
	Low	1.84	1.16, 2.91	0.010	1.07	0.54, 2.15	0.8
Physical activity	3+ times weekly	1.00			1.00		
	1-2 times weekly	0.95	0.44, 2.06	0.9	0.85	0.28, 2.62	0.8
	>4 times monthly	1.22	0.36, 4.13	0.7	0.99	0.20, 4.86	0.9
	No sport	1.10	0.58, 2.11	0.8	1.60	0.57, 4.46	0.4
Smoking status	Non-smoker	1.00			1.00		
	Smoker	1.40	0.95, 2.06	0.089	1.38	0.86, 2.23	0.2
Regional Gini index	1-unit increase	0.99	0.96, 1.03	0.6	1.02	0.96, 1.09	0.4
Regional MDD	1% increase	0.99	0.96, 1.02	0.7	0.98	0.94, 1.03	0.4

Table Q2. Fully adjusted multilevel logistic regression model by proximal and distal determinants stratified by sex for the 2010 ENS.

Variables	Categories	Females 2010 ENS N=2,446			Males 2010 ENS N=1,710		
		OR	95% CI	p-value	OR	95% CI	p-value
Age groups (years)	18-24	1.00			1.00		
	25-44	1.15	0.62, 2.14	0.6	1.26	0.49, 3.27	0.6
	45-64	1.19	0.63, 2.24	0.6	0.77	0.26, 2.24	0.6
	65+	0.56	0.24, 1.33	0.2	0.09	0.02, 0.49	0.005
Area of residence	Urban	1.00			1.00		
	Rural	0.66	0.40, 1.08	0.10	0.63	0.30, 1.33	0.2
Marital status	With Partner	1.00			1.00		
	Widowed/Divorced	1.28	0.79, 2.09	0.3	3.98	1.78, 8.93	<0.001
	No Partner	1.22	0.74, 1.99	0.4	1.23	0.51, 2.97	0.6
Working status	Employed	1.00			1.00		
	Homemaker	2.49	1.59, 3.90	<0.001	3.47	0.83, 14.6	0.089
	Retired	1.53	0.73, 3.18	0.3	2.58	0.77, 8.66	0.13
	Student	1.87	0.81, 4.33	0.14	3.25	0.78, 13.6	0.11
	Unemployed	2.00	1.04, 3.85	0.038	2.09	0.72, 6.04	0.2
Years of education	13+ years	1.00			1.00		
	8-12 years	1.41	0.88, 2.26	0.15	1.19	0.53, 2.66	0.7
	Less than 8 years	1.15	0.62, 2.11	0.7	3.47	1.16, 10.4	0.026
Reciprocity	High	1.00			1.00		
	Medium	2.35	1.60, 3.44	<0.001	2.60	1.32, 5.12	0.006
	Low	2.76	1.69, 4.49	<0.001	1.55	0.62, 3.84	0.3
Trust	High	1.00			1.00		
	Medium	1.06	0.66, 1.70	0.8	0.74	0.33, 1.68	0.5
	Low	2.43	1.45, 4.06	<0.001	1.42	0.54, 3.70	0.5

Cntd. Table Q2. Fully adjusted multilevel logistic regression model by proximal and distal determinants stratified by sex for the 2010 ENS.

Variables	Categories	Females 2010 ENS N=2,446			Males 2010 ENS N=1,710		
		OR	95% CI	p-value	OR	95% CI	p-value
Physical activity	3+ times weekly	1.00			1.00		
	1-2 times weekly	0.59	0.19, 1.84	0.4	3.01	0.92, 9.83	0.068
	>4 times monthly	0.47	0.14, 1.52	0.2	0.05	0.01, 0.32	0.001
	No sport	1.71	0.78, 3.74	0.2	1.75	0.52, 5.93	0.4
Smoking status	Non-smoker	1.00			1.00		
	Smoker	1.75	1.24, 2.47	0.001	1.42	0.78, 2.58	0.2
Regional Gini index	1-unit increase	1.08	1.03, 1.12	<0.001	1.06	0.99, 1.14	0.11
Regional MDD	1% increase	1.00	0.94, 1.07	0.9	1.30	1.16, 1.46	<0.001

Table Q3. Fully adjusted multilevel logistic regression model by proximal and distal determinants stratified by sex for the 2017 ENS.

Variables	Categories	Females ENS 2017 N=3,281			Males ENS 2017 N=1,963		
		OR	95% CI	p-value	OR	95% CI	p-value
Age groups (years)	18-24	1.00			1.00		
	25-44	1.38	0.73, 2.62	0.3	3.77	1.22, 11.7	0.021
	45-64	1.50	0.74, 3.01	0.3	4.56	1.25, 16.7	0.022
	65+	0.61	0.25, 1.53	0.3	0.67	0.11, 4.19	0.7
Area of residence	Urban	1.00			1.00		
	Rural	0.69	0.46, 1.05	0.083	1.37	0.66, 2.81	0.4
Marital status	With Partner	1.00	—		1.00		
	Widowed/Divorced	1.79	1.05, 3.05	0.032	3.35	1.40, 8.02	0.007
	No Partner	1.47	0.95, 2.28	0.081	4.06	2.05, 8.06	<0.001
Working status	Employed	1.00			1.00		
	Homemaker	0.87	0.53, 1.43	0.6	0.37	0.03, 3.85	0.4
	Retired	0.64	0.30, 1.34	0.2	4.26	1.28, 14.1	0.018
	Student	0.99	0.41, 2.39	0.9	1.18	0.33, 4.21	0.8
	Unemployed	0.94	0.43, 2.05	0.9	0.98	0.43, 2.22	0.9
Years of education	13+ years	1.00			1.00		
	8-12 years	1.05	0.66, 1.66	0.8	1.37	0.64, 2.93	0.4
	Less than 8 years	1.08	0.53, 2.21	0.8	0.42	0.17, 1.07	0.070
Reciprocity	High	1.00			1.00		
	Medium	2.04	1.35, 3.08	<0.001	1.78	0.84, 3.79	0.13
	Low	2.25	1.39, 3.65	0.001	2.06	0.96, 4.40	0.062
Trust	High	1.00			1.00		
	Medium	1.15	0.66, 1.99	0.6	2.44	1.06, 5.61	0.035
	Low	1.96	1.17, 3.28	0.010	2.14	0.90, 5.10	0.086

Cntd. Table Q3. Fully adjusted multilevel logistic regression model by proximal and distal determinants stratified by sex for the 2017 ENS.

Variables	Categories	Females ENS 2017 N=3,281			Males ENS 2017 N=1,963		
		OR	95% CI	p-value	OR	95% CI	p-value
Physical activity	3+ times weekly	1.00			1.00		
	1-2 times weekly	0.86	0.29, 2.56	0.8	1.39	0.50, 3.83	0.5
	>4 times monthly	0.50	0.14, 1.77	0.3	2.19	0.65, 7.36	0.2
	No sport	1.09	0.51, 2.34	0.8	1.24	0.51, 3.03	0.6
Smoking status	Non-smoker	1.00			1.00		
	Smoker	1.07	0.67, 1.69	0.8	1.82	1.04, 3.20	0.036
Regional Gini index	1-unit increase	1.02	0.95, 1.09	0.6	1.05	0.97, 1.13	0.3
Regional MDD	1% increase	0.95	0.89, 1.01	0.11	0.97	0.87, 1.10	0.7

Table Q4. Fully adjusted multilevel logistic regression model by proximal and distal determinants stratified by years of education for the 2003 ENS.

Variables	Categories	Less than 8 years of education N=1,571			8-12 years of education N=1,165			More than 12 years of education N=403		
		OR	95% CI	p-value	OR	95% CI	p-value	OR	95% CI	p-value
Sex	Males	1.00			1.00			1.00		
	Females	2.60	1.34, 5.03	0.005	3.14	1.80, 5.48	<0.001	1.36	0.42, 4.43	0.6
Age groups (years)	18-24	—			—			1.00		
	25-44	3.26	0.69, 15.3	0.13	0.82	0.42, 1.59	0.6	1.24	0.41, 3.75	0.7
	45-64	2.56	0.62, 10.6	0.2	0.59	0.28, 1.24	0.2	0.85	0.23, 3.09	0.8
	65+	1.92	0.41, 9.00	0.4	0.27	0.06, 1.25	0.093	0.00	0.00, 0.02	<0.001
Area of residence	Urban	—			1.00			1.00		
	Rural	0.57	0.35, 0.94	0.028	0.45	0.20, 1.02	0.057	6.87	0.79, 59.5	0.079
Marital status	With Partner	—			—			—		
	Widowed/Divorced	1.00	0.59, 1.67	0.9	3.17	1.18, 8.56	0.023	2.12	0.71, 6.33	0.2
	No Partner	0.60	0.29, 1.24	0.2	1.36	0.81, 2.26	0.2	0.79	0.19, 3.24	0.7

Cntd. Table Q4. Fully adjusted multilevel logistic regression model by proximal and distal determinants stratified by years of education for the 2003 ENS.

Variables	Categories	Less than 8 years of education N=1,571			8-12 years of education N=1,165			More than 12 years of education N=403		
		OR	95% CI	p-value	OR	95% CI	p-value	OR	95% CI	p-value
Working status	Employed	1.00			1.00			1.00		
	Homemaker	1.45	0.78, 2.69	0.2	1.30	0.66, 2.57	0.5	8.49	2.31, 31.1	0.002
	Retired	1.00	0.49, 2.08	0.9	2.13	0.71, 6.41	0.2	4.38	0.60, 32.0	0.14
	Unemployed	2.05	0.93, 4.52	0.074	2.31	1.23, 4.35	0.010	1.63	0.52, 5.11	0.4
	Student	No observations			1.24	0.51, 3.04	0.6	1.98	0.12, 33.2	0.6
Reciprocity	High	1.00			1.00			1.00		
	Medium	1.49	1.01, 2.19	0.042	2.14	1.30, 3.53	0.003	1.26	0.46, 3.48	0.6
	Low	2.06	1.29, 3.29	0.003	2.27	1.04, 4.97	0.040	8.90	2.00, 39.7	0.005
Trust	High	1.00			1.00			1.00		
	Medium	1.61	0.83, 3.09	0.2	1.09	0.62, 1.92	0.8	0.73	0.19, 2.79	0.6
	Low	1.63	0.88, 3.02	0.12	2.04	1.17, 3.56	0.012	0.91	0.27, 3.00	0.9

Cntd. Table Q4. Fully adjusted multilevel logistic regression model by proximal and distal determinants stratified by years of education for the 2003 ENS.

Variables	Categories	Less than 8 years of education N=1,571			8-12 years of education N=1,165			More than 12 years of education N=403		
		OR	95% CI	p-value	OR	95% CI	p-value	OR	95% CI	p-value
Physical activity	3+ times weekly	1.00			1.00			1.00		
	1-2 times weekly	2.10	0.68, 6.49	0.2	0.70	0.27, 1.81	0.5	0.46	0.06, 3.56	0.4
	>4 times monthly	3.27	0.74, 14.5	0.12	0.64	0.19, 2.14	0.5	0.42	0.03, 6.64	0.5
	No sport	2.12	0.82, 5.46	0.12	0.85	0.43, 1.68	0.6	1.82	0.19, 17.1	0.6
Smoking status	Non-smoker	1.00			1.00			1.00		
	Smoker	1.34	0.81, 2.23	0.3	1.84	1.10, 3.07	0.021	0.78	0.33, 1.86	0.6
Regional Gini index	1-unit increase	1.00	0.96, 1.05	0.9	1.00	0.95, 1.04	0.9	1.02	0.91, 1.14	0.7
Regional MDD	1% increase	0.98	0.95, 1.02	0.4	0.99	0.96, 1.02	0.4	0.98	0.89, 1.07	0.6

Table Q5. Fully adjusted multilevel logistic regression model by proximal and distal determinants stratified by years of education for the 2010 ENS.

Variables	Categories	Less than 8 years of education N=1,105			8-12 years of education N=2,225			More than 12 years of education N=826		
		OR	95% CI	p-value	OR	95% CI	p-value	OR	95% CI	p-value
Sex	Males	1.00			1.00			1.00		
	Females	1.43	0.68, 2.99	0.3	3.46	2.11, 5.67	<0.001	1.95	0.82, 4.65	0.13
Age groups (years)	18-24	1.00			1.00			1.00		
	25-44	3.66	0.68, 19.7	0.13	1.00	0.55, 1.82	0.9	1.66	0.45, 6.11	0.4
	45-64	3.46	0.68, 17.5	0.13	0.92	0.47, 1.83	0.8	1.46	0.34, 6.23	0.6
	65+	1.06	0.19, 5.81	0.9	0.51	0.16, 1.67	0.3	0.09	0.01, 1.16	0.065
Area of residence	Urban	1.00			1.00			1.00		
	Rural	0.78	0.42, 1.43	0.4	0.53	0.25, 1.13	0.10	1.45	0.22, 9.45	0.7
Marital status	With Partner	1.00			1.00			—		
	Widowed/Divorced	1.67	0.86, 3.26	0.13	1.41	0.74, 2.68	0.3	2.72	1.01, 7.36	0.048
	No Partner	0.68	0.28, 1.63	0.4	1.05	0.60, 1.82	0.9	3.35	1.46, 7.72	0.004

Cntd. Table Q5. Fully adjusted multilevel logistic regression model by proximal and distal determinants stratified by years of education for the 2010 ENS.

Variables	Categories	Less than 8 years of education N=1,105			8-12 years of education N=2,225			More than 12 years of education N=826		
		OR	95% CI	p-value	OR	95% CI	p-value	OR	95% CI	p-value
Working status	Employed	1.00			1.00			1.00		
	Homemaker	2.14	1.01, 4.53	0.046	2.55	1.48, 4.40	<0.001	3.82	1.40, 10.4	0.009
	Retired	1.70	0.70, 4.10	0.2	1.04	0.33, 3.28	0.9	9.39	2.53, 34.8	<0.001
	Student	No observations			2.30	0.81, 6.51	0.12	1.87	0.51, 6.90	0.3
	Unemployed	2.98	0.73, 12.3	0.13	1.82	0.92, 3.63	0.087	1.09	0.24, 5.03	0.9
Reciprocity	High	1.00			1.00			1.00		
	Medium	1.91	1.04, 3.49	0.036	2.64	1.69, 4.14	<0.001	2.89	1.28, 6.50	0.011
	Low	2.37	1.21, 4.63	0.012	3.21	1.91, 5.39	<0.001	1.02	0.37, 2.80	0.9
Trust	High	1.00			1.00			1.00		
	Medium	0.81	0.37, 1.76	0.6	1.05	0.63, 1.76	0.8	0.92	0.38, 2.20	0.8
	Low	1.37	0.61, 3.08	0.4	2.22	1.24, 3.97	0.007	2.22	0.81, 6.09	0.12

Cntd. Table Q5. Fully adjusted multilevel logistic regression model by proximal and distal determinants stratified by years of education for the 2010 ENS.

Variables	Categories	Less than 8 years of education N=1,105			8-12 years of education N=2,225			More than 12 years of education N=826		
		OR	95% CI	p-value	OR	95% CI	p-value	OR	95% CI	p-value
Physical activity	3+ times weekly	1.00			1.00			1.00		
	1-2 times weekly	1.48	0.10, 22.4	0.8	1.82	0.66, 5.07	0.2	1.08	0.18, 6.49	0.9
	>4 times monthly	0.38	0.04, 3.63	0.4	0.06	0.02, 0.24	<0.001	2.31	0.43, 12.3	0.3
	No sport	0.56	0.12, 2.69	0.5	1.36	0.67, 2.77	0.4	4.22	0.95, 18.7	0.058
Smoking status	Non-smoker	1.00			1.00			1.00		
	Smoker	1.31	0.66, 2.62	0.4	1.37	0.90, 2.09	0.14	2.97	1.49, 5.91	0.002
Regional Gini index		1.09	1.01, 1.18	0.036	1.04	1.00, 1.09	0.060	1.13	1.05, 1.22	<0.001
Regional MDD		1.09	0.98, 1.22	0.12	1.08	1.00, 1.16	0.055	1.09	0.95, 1.26	0.2

Table Q6. Fully adjusted multilevel logistic regression model by proximal and distal determinants stratified by years of education for the 2017 ENS.

Variables	Categories	Less than 8 years of education N=1,282			8-12 years of education N=2,765			More than 12 years of education N=1,197		
		OR	95% CI	p-value	OR	95% CI	p-value	OR	95% CI	p-value
Sex	Males	1.00			1.00			1.00		
	Females	5.36	2.69, 10.7	<0.001	1.68	1.03, 2.74	0.039	2.23	1.18, 4.22	0.013
Age groups (years)	18-24	1.00			1.00			1.00		
	25-44	4.21	0.23, 76.2	0.3	2.06	1.05, 4.04	0.036	1.57	0.51, 4.79	0.4
	45-64	5.28	0.26, 107	0.3	2.29	1.03, 5.06	0.042	1.17	0.28, 4.85	0.8
	65+	1.41	0.08, 26.2	0.8	1.09	0.37, 3.19	0.9	0.06	0.00, 0.86	0.039
Area of residence	Urban	1.00			1.00			1.00		
	Rural	0.66	0.36, 1.20	0.2	1.04	0.62, 1.75	0.9	1.05	0.21, 5.29	0.9
Marital status	With Partner	1.00			1.00			1.00		
	Widowed/Divorced	2.45	1.04, 5.75	0.039	2.52	1.40, 4.55	0.002	0.88	0.36, 2.14	0.8
	No Partner	1.81	0.51, 6.43	0.4	2.64	1.63, 4.26	<0.001	1.11	0.49, 2.54	0.8

Cntd. Table Q6. Fully adjusted multilevel logistic regression model by proximal and distal determinants stratified by years of education for the 2017 ENS.

Variables	Categories	Less than 8 years of education N=1,282			8-12 years of education N=2,765			More than 12 years of education N=1,197		
		OR	95% CI	p-value	OR	95% CI	p-value	OR	95% CI	p-value
Working status	Employed	1.00			1.00			1.00		
	Homemaker	0.39	0.18, 0.86	0.020	1.14	0.61, 2.12	0.7	0.89	0.33, 2.41	0.8
	Retired	1.16	0.48, 2.79	0.7	0.65	0.24, 1.73	0.4	2.78	0.38, 20.4	0.3
	Student	1.46	0.06, 37.3	0.8	1.03	0.31, 3.44	0.9	1.22	0.45, 3.33	0.7
	Unemployed	1.06	0.25, 4.38	0.9	1.43	0.69, 2.99	0.3	0.22	0.06, 0.86	0.030
Reciprocity	High	1.00			1.00			1.00		
	Medium	0.83	0.45, 1.54	0.6	1.75	1.10, 2.78	0.018	4.71	2.19, 10.2	<0.001
	Low	1.78	0.88, 3.60	0.11	1.72	1.02, 2.90	0.042	6.34	2.16, 18.6	<0.001
Trust	High	1.00			1.00			1.00		
	Medium	0.89	0.30, 2.66	0.8	2.21	1.28, 3.82	0.005	1.10	0.52, 2.34	0.8
	Low	1.74	0.69, 4.37	0.2	3.27	1.85, 5.77	<0.001	0.82	0.32, 2.07	0.7

Cntd. Table Q6. Fully adjusted multilevel logistic regression model by proximal and distal determinants stratified by years of education for the 2017 ENS.

Variables	Categories	Less than 8 years of education N=1,282			8-12 years of education N=2,765			More than 12 years of education N=1,197		
		OR	95% CI	p-value	OR	95% CI	p-value	OR	95% CI	p-value
Physical activity	3+ times weekly	1.00			1.00			1.00		
	1-2 times weekly	1.39	0.22, 8.93	0.7	1.27	0.53, 3.09	0.6	1.35	0.41, 4.51	0.6
	>4 times monthly	1.84	0.34, 9.92	0.5	1.99	0.59, 6.79	0.3	0.57	0.12, 2.77	0.5
	No sport	0.28	0.09, 0.84	0.024	1.61	0.80, 3.20	0.2	1.35	0.53, 3.45	0.5
Smoking status	Non-smoker	1.00			1.00			1.00		
	Smoker	0.96	0.51, 1.81	0.9	1.26	0.84, 1.88	0.3	1.61	0.80, 3.22	0.2
Regional Gini index		0.91	0.81, 1.03	0.15	1.06	0.99, 1.14	0.075	1.02	0.93, 1.12	0.7
Regional MDD		1.04	0.94, 1.16	0.4	0.93	0.86, 0.99	0.032	0.98	0.83, 1.16	0.8

Appendix R. Comparison between multilevel logistic regression adjusted by proximal and distal variables at the regional level with model with imputed data.

Table R1. Comparison between multilevel logistic regression adjusted by proximal and distal variables at the regional level with model with imputed data based on the 2003 ENS.

Variables	Categories	2003 ENS N=3,139			Imputed 2003 ENS N=3,583		
		OR	95% CI	p-value	OR	95% CI	p-value
Sex	Males	1.00			1.00		
	Females	2.37	1.44 — 3.89	0.001	2.24	1.45 — 3.47	<0.001
Age groups (years)	18-24	1.00			1.00		
	25-44	1.05	0.62 — 1.77	0.862	1.03	0.64 — 1.66	0.914
	45-64	0.85	0.49 — 1.47	0.564	0.82	0.50 — 1.34	0.434
	65+	0.52	0.27 — 1.02	0.059	0.46	0.25 — 0.85	0.013
Area of residence	Urban	1.00			1.00		
	Rural	0.61	0.39 — 0.94	0.028	0.59	0.40 — 0.87	0.008

Cntd. Table R1. Comparison between multilevel logistic regression adjusted by proximal and distal variables at the regional level with model with imputed data based on the 2003 ENS.

Variables	Categories	2003 ENS N=3,139			Imputed 2003 ENS N=3,583		
		OR	95% CI	p-value	OR	95% CI	p-value
Marital status	With partner	1.00			1.00		
	Widowed/Divorced	1.61	0.99 — 2.63	0.058	1.44	0.94 — 2.21	0.097
	No partner	0.91	0.62 — 1.34	0.631	0.85	0.59 — 1.22	0.369
Working status	Employed	1.00			1.00		
	Homemaker	1.45	0.89 — 2.36	0.136	1.37	0.90 — 2.07	0.141
	Retired	1.33	0.71 — 2.49	0.373	1.43	0.83 — 2.47	0.196
	Student	1.39	0.53 — 3.59	0.503	1.14	0.5 — 2.57	0.759
	Unemployed	2.05	1.31 — 3.21	0.002	1.81	1.2 — 2.74	0.005
Years of education	13+	1.00			1.00		
	8-12	0.95	0.54 — 1.65	0.844	0.96	0.61 — 1.51	0.858
	Less than 8	0.88	0.47 — 1.66	0.695	0.95	0.56 — 1.63	0.857

Cntd. Table R1. Comparison between multilevel logistic regression adjusted by proximal and distal variables at the regional level with model with imputed data based on the 2003 ENS.

Variables	Categories	2003 ENS N=3,139			Imputed 2003 ENS N=3,583		
		OR	95% CI	p-value	OR	95% CI	p-value
Reciprocity	High	1.00			1.00		
	Medium	1.89	1.37 — 2.6	<0.001	1.71	1.30 — 2.24	<0.001
	Low	2.50	1.58 — 3.95	<0.001	2.13	1.46 — 3.11	<0.001
Trust	High	1.00			1.00		
	Medium	1.10	0.68 — 1.79	0.689	1.13	0.72 — 1.78	0.596
	Low	1.52	0.99 — 2.33	0.056	1.68	1.15 — 2.46	0.008
Physical activity	3+ times weekly	1.00			1.00		
	1-2 times weekly	0.86	0.41 — 1.80	0.683	0.71	0.37 — 1.33	0.286
	>4 times monthly	0.94	0.36 — 2.43	0.896	0.86	0.36 — 2.06	0.738
	No sport	1.20	0.64 — 2.25	0.564	1.18	0.69 — 2.02	0.557

Cntd. Table R1. Comparison between multilevel logistic regression adjusted by proximal and distal variables at the regional level with model with imputed data based on the 2003 ENS.

Variables	Categories	2003 ENS N=3,139			Imputed 2003 ENS N=3,583		
		OR	95% CI	p-value	OR	95% CI	p-value
Smoking status	Non-smoker	1.00			1.00		
	Smoker	1.37	1.00 — 1.88	0.055	1.38	1.02 — 1.87	0.040
Regional Gini index		1.00	0.97 — 1.03	0.952	1.01	0.98 — 1.04	0.595
Regional MDD		0.99	0.96 — 1.01	0.343	0.99	0.97 — 1.02	0.555

Table R2. Comparison between multilevel logistic regression adjusted by proximal and distal variables at the regional level with model with imputed data based on the 2010 ENS.

Variables	Categories	2010 ENS N=4,156			Imputed 2010 ENS N=5,069		
		OR	95% CI	p-value	OR	95% CI	p-value
Sex	Males	1.00			1.00		
	Females	2.52	1.70 — 3.74	<0.001	2.86	2.03 — 4.02	<0.001
Age groups (years)	18-24	1.00			1.00		
	25-44	1.22	0.72 — 2.09	0.462	1.20	0.76 — 1.89	0.442
	45-64	1.07	0.62 — 1.85	0.808	0.98	0.61 — 1.56	0.917
	65+	0.40	0.19 — 0.86	0.019	0.42	0.22 — 0.78	0.006
Area of residence	Urban	1.00			1.00		
	Rural	0.68	0.45 — 1.01	0.056	0.67	0.48 — 0.93	0.018
Marital status	With partner	1.00			1.00		
	Widowed/Divorced	1.56	1.00 — 2.43	0.049	1.45	1.00 — 2.12	0.052
	No partner	1.30	0.83 — 2.04	0.253	1.08	0.74 — 1.58	0.693

Cntd. Table R2. Comparison between multilevel logistic regression adjusted by proximal and distal variables at the regional level with model with imputed data based on the 2010 ENS.

Variables	Categories	2010 ENS N=4,156			Imputed 2010 ENS N=5,069		
		OR	95% CI	p-value	OR	95% CI	p-value
Working status	Employed	1.00			1.00		
	Homemaker	2.47	1.63 — 3.73	<0.001	2.01	1.41 — 2.88	<0.001
	Retired	1.63	0.87 — 3.03	0.126	1.74	1.06 — 2.86	0.028
	Student	2.12	0.98 — 4.58	0.056	1.62	0.86 — 3.04	0.133
	Unemployed	1.95	0.93 — 4.09	0.077	1.86	0.99 — 3.49	0.056
Years of education	13+	1.00			1.00		
	8-12	1.35	0.89 — 2.05	0.163	1.36	0.94 — 1.96	0.106
	Less than 8	1.56	0.86 — 2.83	0.145	1.48	0.89 — 2.47	0.129
Reciprocity	High	1.00			1.00		
	Medium	2.30	1.63 — 3.25	<0.001	2.13	1.58 — 2.86	<0.001
	Low	2.41	1.61 — 3.59	<0.001	2.23	1.58 — 3.15	<0.001

Cntd. Table R2. Comparison between multilevel logistic regression adjusted by proximal and distal variables at the regional level with model with imputed data based on the 2010 ENS.

Variables	Categories	2010 ENS N=4,156			Imputed 2010 ENS N=5,069		
		OR	95% CI	p-value	OR	95% CI	p-value
Trust	High	1.00			1.00		
	Medium	1.04	0.68 — 1.57	0.870	1.07	0.74 — 1.55	0.711
	Low	2.12	1.34 — 3.36	0.001	2.21	1.48 — 3.29	<0.001
Physical activity	3+ times per week	1.00			1.00		
	1-2 times weekly	1.62	0.71 — 3.69	0.252	1.53	0.77 — 3.06	0.226
	>4 times monthly	0.29	0.12 — 0.71	0.006	0.44	0.20 — 0.95	0.036
	No sport	1.73	0.93 — 3.21	0.084	1.97	1.18 — 3.31	0.010
Smoking status	Non-smoker	1.00			1.00		
	Smoker	1.60	1.16 — 2.21	0.004	1.52	1.15 — 2.01	0.004
Regional Gini		1.07	1.03 — 1.11	<0.001	1.05	1.02 — 1.09	0.001
Regional MDD		1.09	1.03 — 1.15	0.004	1.07	1.01 — 1.13	0.017

Table R3. Comparison between multilevel logistic regression adjusted by proximal and distal variables at the regional level with model with imputed data based on the 2017 ENS.

Variables	Categories	2017 ENS N=5,244			Imputed 2017 ENS N=5,995		
		OR	95% CI	p-value	OR	95% CI	p-value
Sex	Males	1.00			1.00		
	Females	2.20	1.56 — 3.11	<0.001	2.28	1.68 — 3.08	<0.001
Age groups (years)	18-24	1.00			1.00		
	25-44	2.03	1.08 — 3.82	0.029	2.04	1.20 — 3.47	0.008
	45-64	2.20	1.11 — 4.33	0.024	2.11	1.18 — 3.75	0.012
	65+	0.76	0.31 — 1.9	0.563	0.85	0.39 — 1.87	0.687
Area of residence	Urban	1.00			1.00		
	Rural	0.90	0.61 — 1.33	0.608	0.76	0.53 — 1.08	0.124
Marital status	With partner	1.00			1.00		
	Widowed/Divorced	2.16	1.35 — 3.46	0.001	1.76	1.12 — 2.76	0.014
	No partner	2.11	1.42 — 3.13	<0.001	1.79	1.26 — 2.53	0.001

Cntd. Table R3. Comparison between multilevel logistic regression adjusted by proximal and distal variables at the regional level with model with imputed data based on the 2017 ENS.

Variables	Categories	2017 ENS N=5,244			Imputed 2017 ENS N=5,995		
		OR	95% CI	p-value	OR	95% CI	p-value
Working status	Employed	1.00			1.00		
	Homemaker	0.93	0.59 — 1.47	0.755	1.05	0.69 — 1.60	0.809
	Retired	1.04	0.52 — 2.06	0.918	1.03	0.55 — 1.91	0.930
	Student	1.16	0.53 — 2.56	0.705	0.82	0.42 — 1.58	0.546
	Unemployed	1.05	0.61 — 1.81	0.860	1.11	0.67 — 1.83	0.682
Years of education	13+	1.00			1.00		
	8-12	1.22	0.81 — 1.84	0.341	1.10	0.74 — 1.64	0.625
	Less than 8	0.92	0.48 — 1.75	0.799	0.83	0.46 — 1.50	0.541
Reciprocity	High	1.00			1.00		
	Medium	1.94	1.37 — 2.76	<0.001	1.94	1.43 — 2.64	<0.001
	Low	2.21	1.44 — 3.39	<0.001	1.95	1.3 — 2.92	0.001

Cntd. Table R3. Comparison between multilevel logistic regression adjusted by proximal and distal variables at the regional level with model with imputed data based on the 2017 ENS.

Variables	Categories	2017 ENS N=5,244			Imputed 2017 ENS N=5,995		
		OR	95% CI	p-value	OR	95% CI	p-value
Trust	High	1.00			1.00		
	Medium	1.48	0.95 — 2.3	0.080	1.60	1.09 — 2.33	0.015
	Low	2.03	1.28 — 3.22	0.003	2.48	1.62 — 3.81	<0.001
Physical activity	3+ times weekly	1.00			1.00		
	1-2 times weekly	1.12	0.56 — 2.26	0.746	1.06	0.55 — 2.04	0.851
	>4 times monthly	1.18	0.44 — 3.18	0.744	1.14	0.47 — 2.81	0.768
	No sport	1.13	0.62 — 2.06	0.695	1.21	0.71 — 2.06	0.482
Smoking	Non-smoker	1.00			1.00		
	Smoker	1.31	0.94 — 1.84	0.113	1.29	0.97 — 1.73	0.083
Regional Gini index		1.02	0.96 — 1.08	0.445	1.02	0.97 — 1.07	0.454
Regional MDD index		0.96	0.91 — 1.01	0.133	0.96	0.91 — 1.01	0.097

Appendix S. Table S1. Number and percentage of death by exposure's categories in the analytical sample of the 2003 and 2010 cohort with an 8.5-years follow-up.

Variables	Categories	2003 ENS N=3,151		2010 ENS N=3,749	
		n	**%**	***n***	**%**
Depressive symptoms	Yes	55	10.72	52	8.48
	No	260	9.86	266	8.48
Sex	Females	160	9.3	173	7.77
	Males	155	10.84	145	9.53
Age groups	18-44 years	9	0.67	13	0.75
	45-64 years	47	4.59	72	5.62
	65+ years	259	33.08	233	32.14
Marital Status	No Partner	31	4.1	36	4.32
	Widowed/Divorced	135	25.52	134	18.82
	With Partner	149	7.98	148	6.72
Working Status	Employed + Student	32	2.29	63	3.08
	Homemaker	83	8.88	46	5.04
	Retired	153	35.33	176	30.45
	Unemployed	47	12.14	33	15.49
Years of Education	12+	8	2.06	22	2.98
	8-12	49	4.28	98	4.87
	Less than 8	258	15.95	198	19.82

Cntd. Table S1. Number and percentage of death by exposure's categories in the analytical sample of the 2003 and 2010 cohort with an 8.5-years follow-up.

Variables	Categories	2003 ENS N=3,151		2010 ENS N=3,749	
		n	**%**	***n***	**%**
Physical activity	3+ times weekly	8	3.05	5	1.82
	1-2 times weekly	14	4.59	2	0.71
	<4 times monthly	3	2.29	6	3.49
	No sport	290	11.82	305	10.09
Smoking	No	271	13.21	260	10.86
	Yes	44	4.00	58	4.28
High Blood Pressure	Yes	190	17.54	199	18.86
	No	125	6.04	119	4.42
Diabetes	Yes	84	26.33	78	21.85
	No	231	8.16	240	7.08

Appendix T. Plot of Schoenfeld residuals of exposures of the fully adjusted model.

Figure T1. Plot of Schoenfeld residuals of the sex variable in the fully adjusted model of the 2003 cohort.

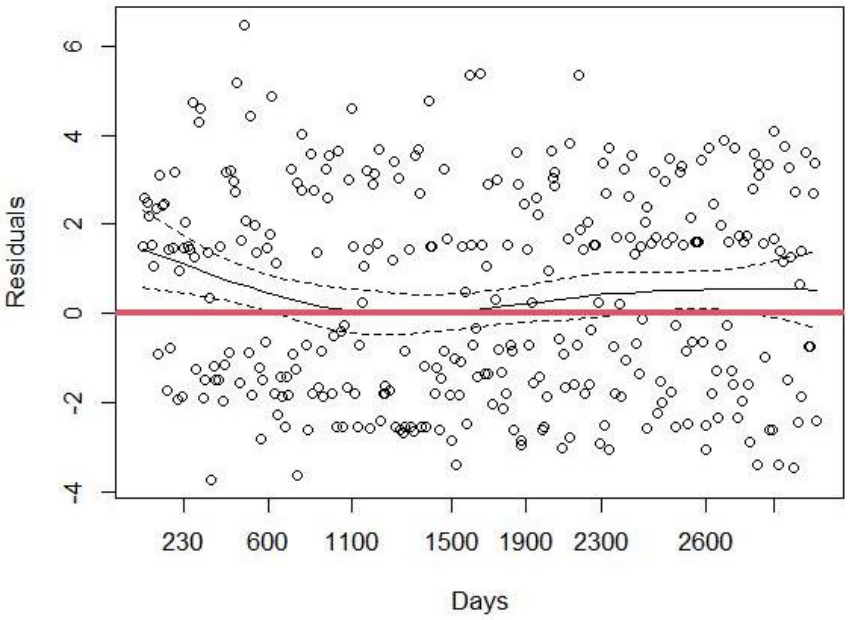


Figure T2. Plot of Schoenfeld residuals of the age variable in the fully adjusted model of the 2003 cohort.

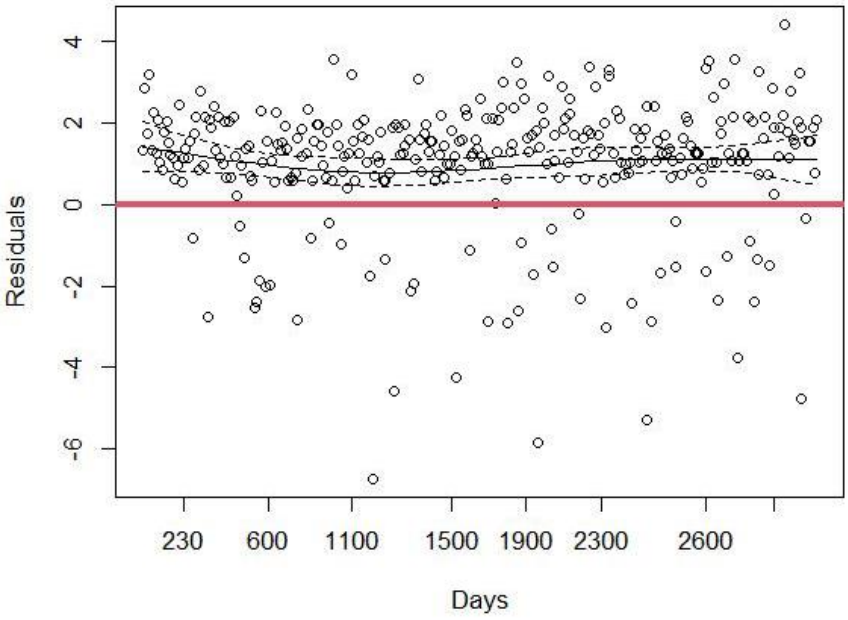


Figure T3. Plot of Schoenfeld residuals of the marital status variable in the fully adjusted model of the 2003 cohort.

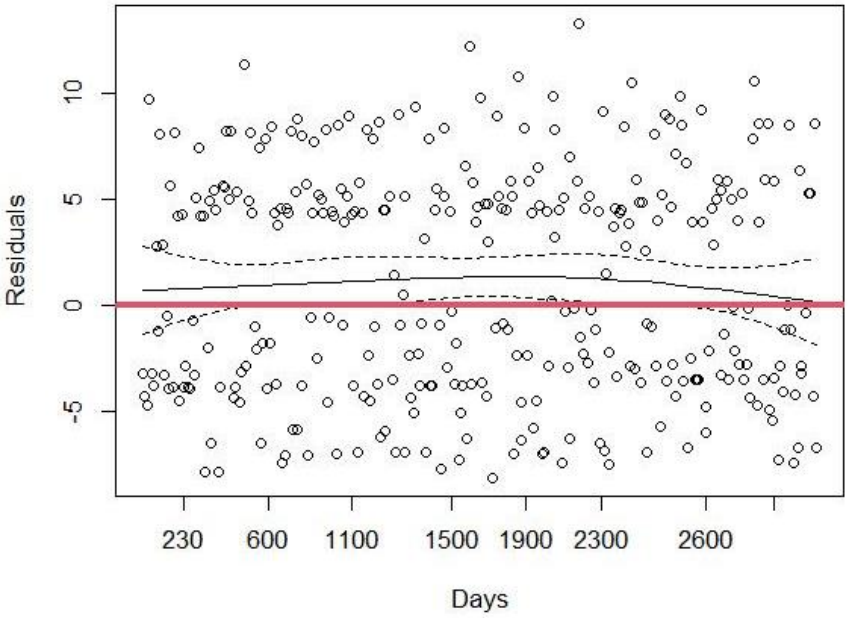


Figure T4. Plot of Schoenfeld residuals of the education variable in the fully adjusted model of the 2003 cohort.

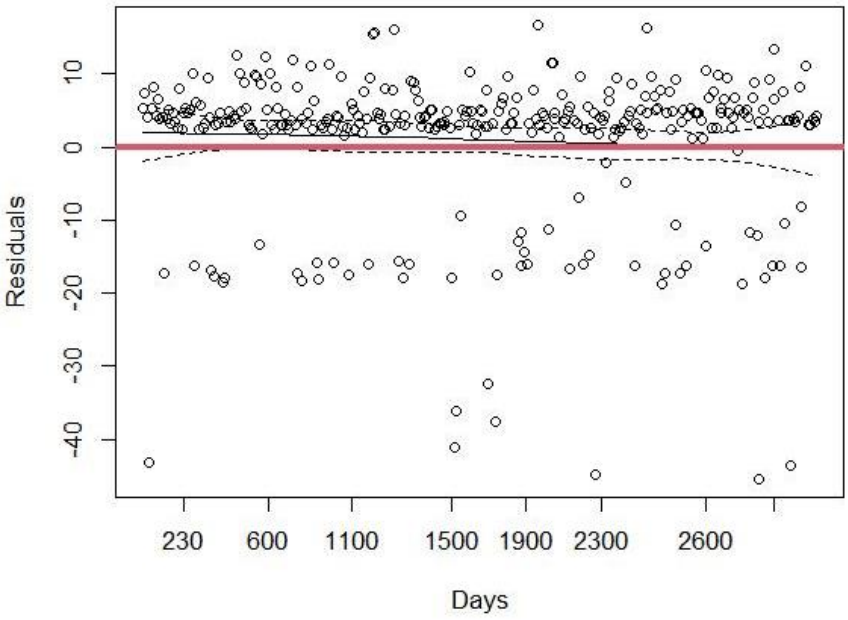


Figure T5. Plot of Schoenfeld residuals of the working status variable in the fully adjusted model of the 2003 cohort.

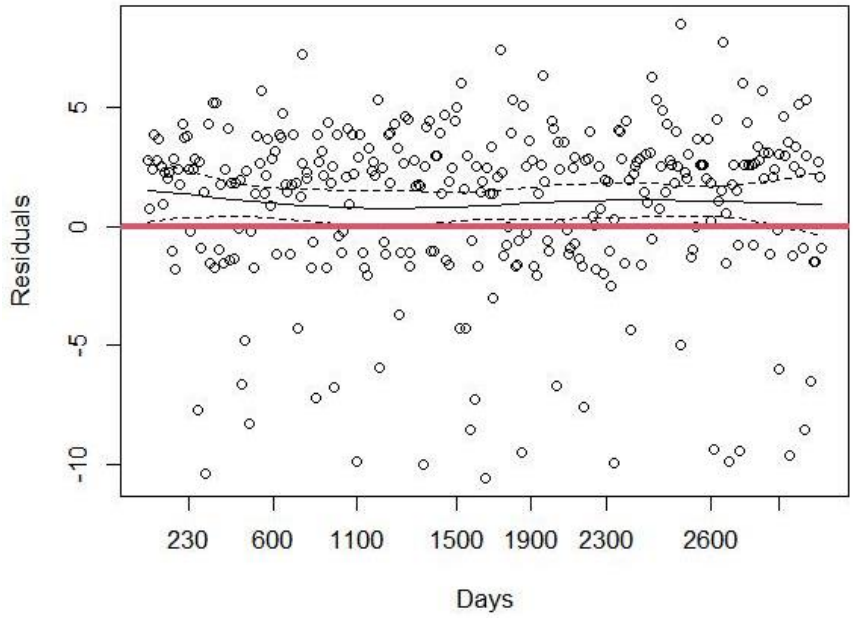


Figure T6. Plot of Schoenfeld residuals of the physical activity variable in the fully adjusted model of the 2003 cohort.

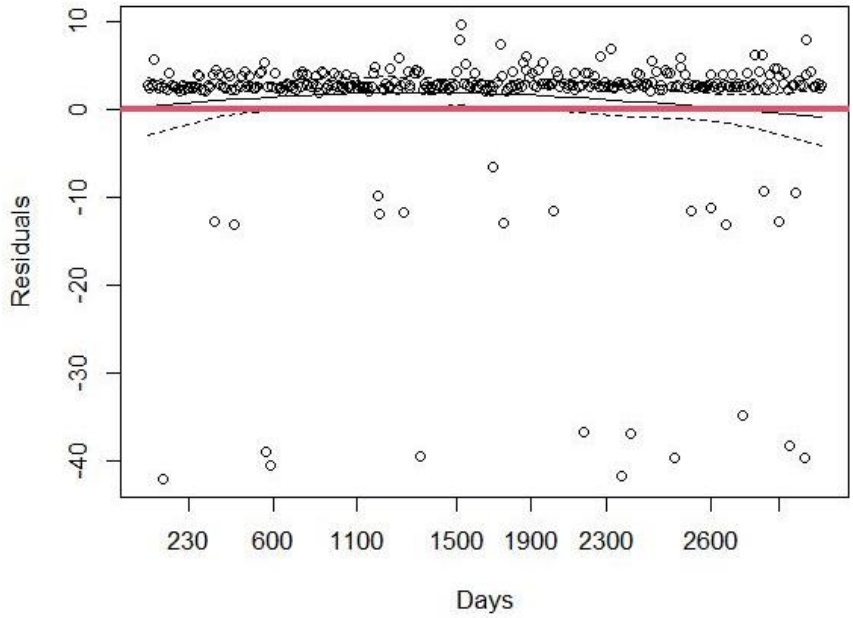


Figure T7. Plot of Schoenfeld residuals of the smoking status variable in the fully adjusted model of the 2003 cohort.

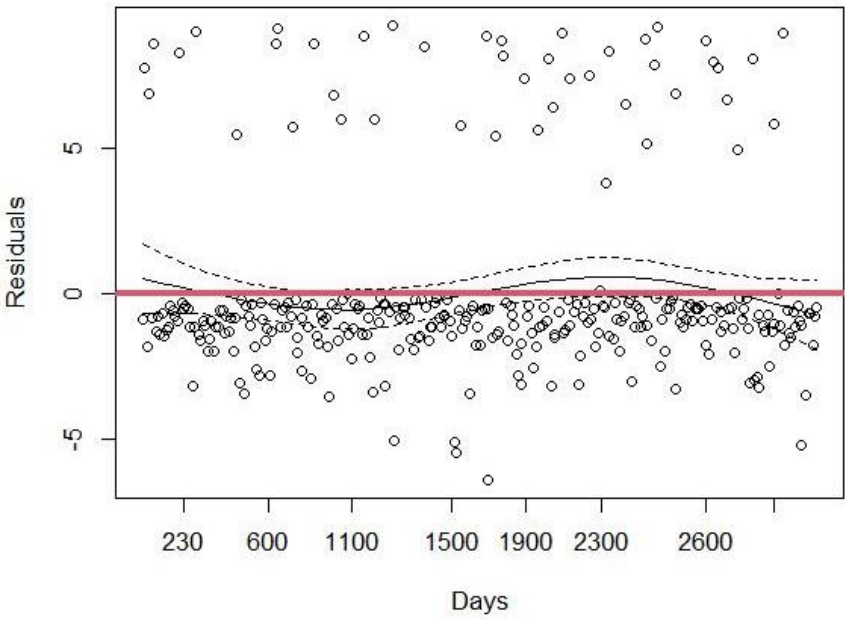


Figure T8. Plot of Schoenfeld residuals of the high-blood pressure variable in the fully adjusted model of the 2003 cohort.

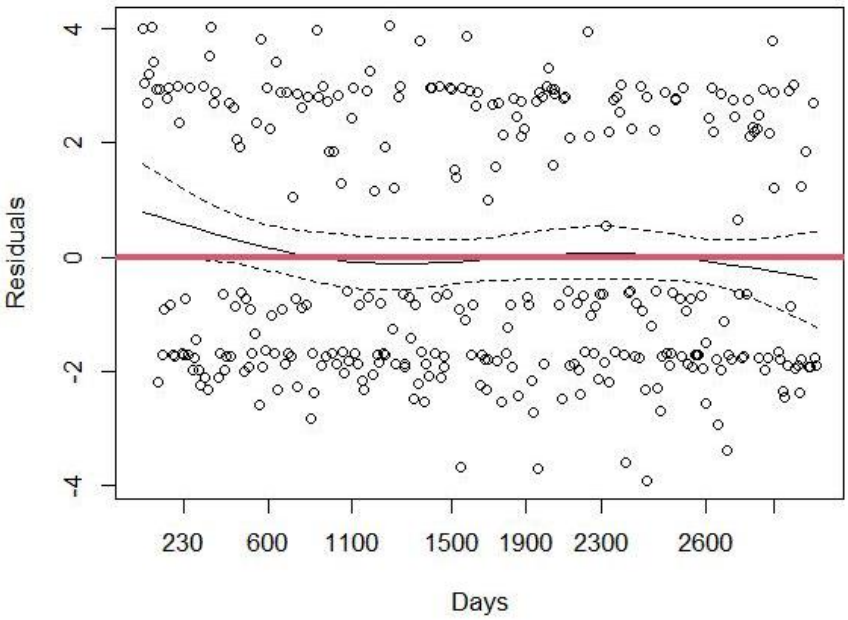


Figure T9. Plot of Schoenfeld residuals of the diabetes variable in the fully adjusted model of the 2003 cohort.

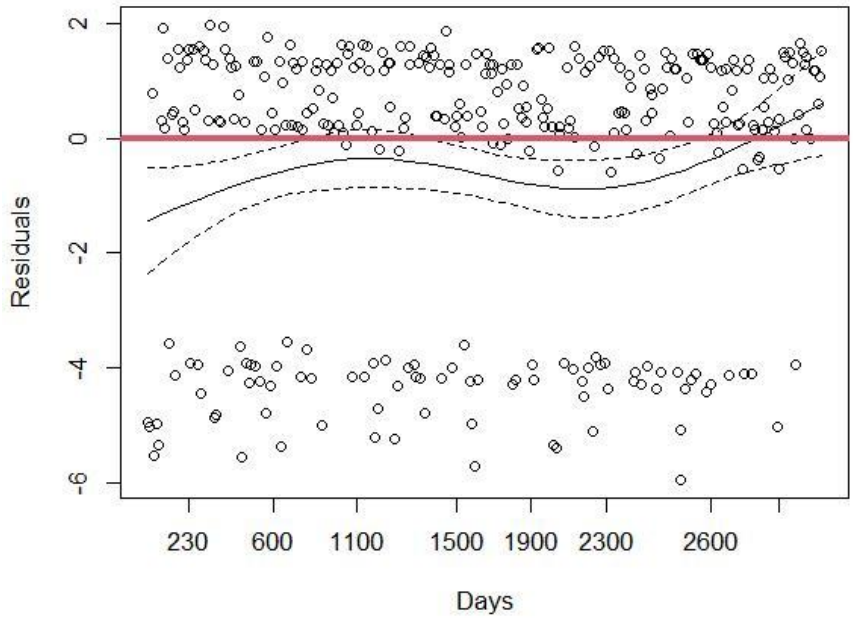


Figure T10. Plot of Schoenfeld residuals of the sex variable in the fully adjusted model of the 2010 cohort.

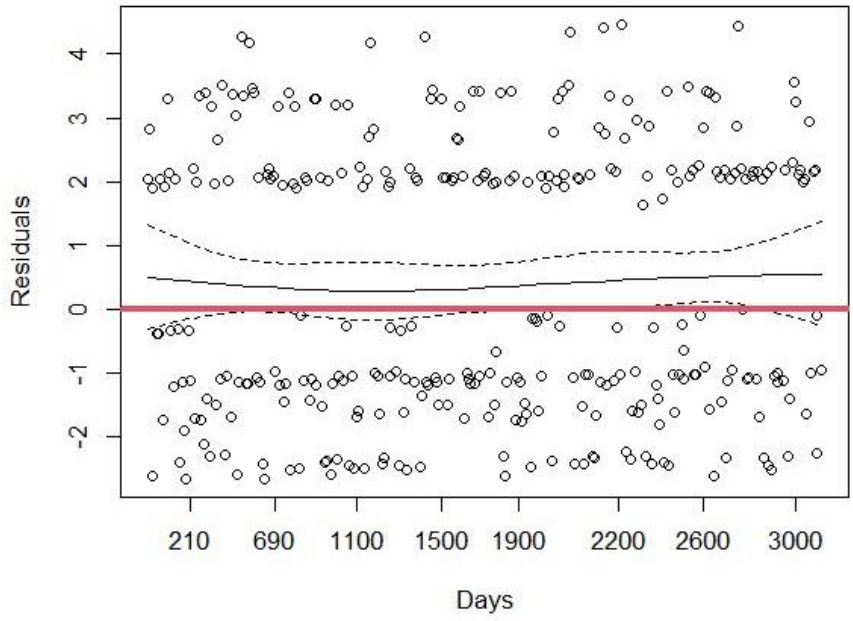


Figure T11. Plot of Schoenfeld residuals of the age variable in the fully adjusted model of the 2010 cohort.

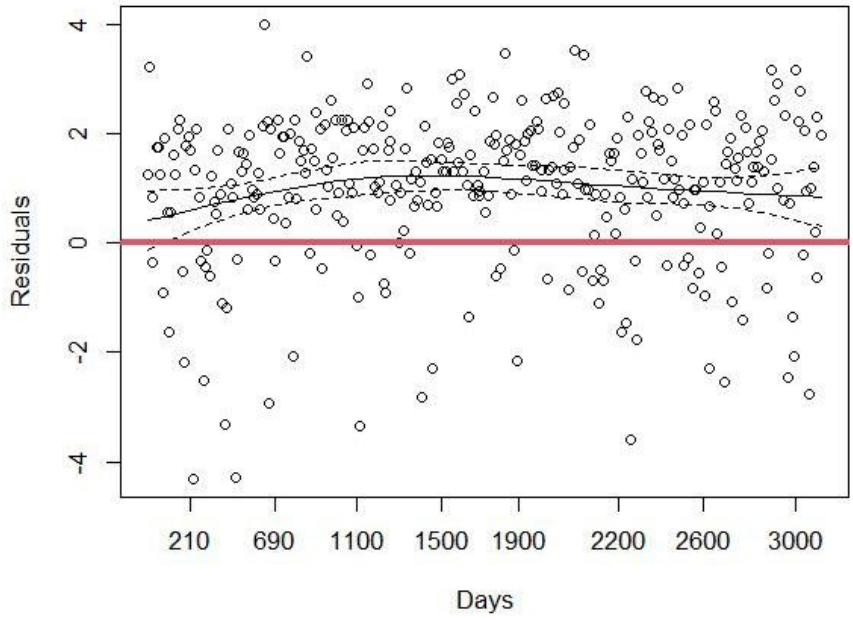


Figure T12. Plot of Schoenfeld residuals of the marital status variable in the fully adjusted model of the 2010 cohort.

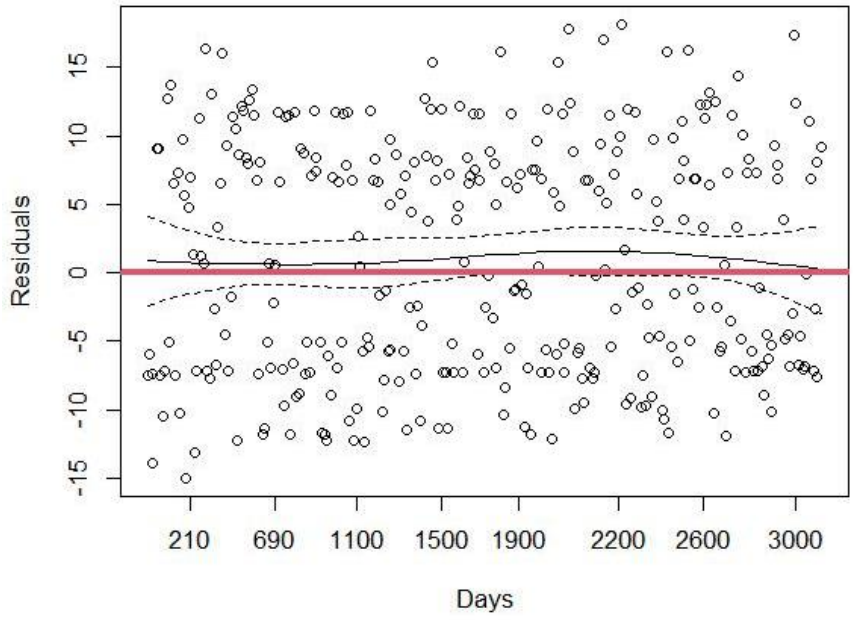


Figure T13. Plot of Schoenfeld residuals of the education variable in the fully adjusted model of the 2010 cohort.

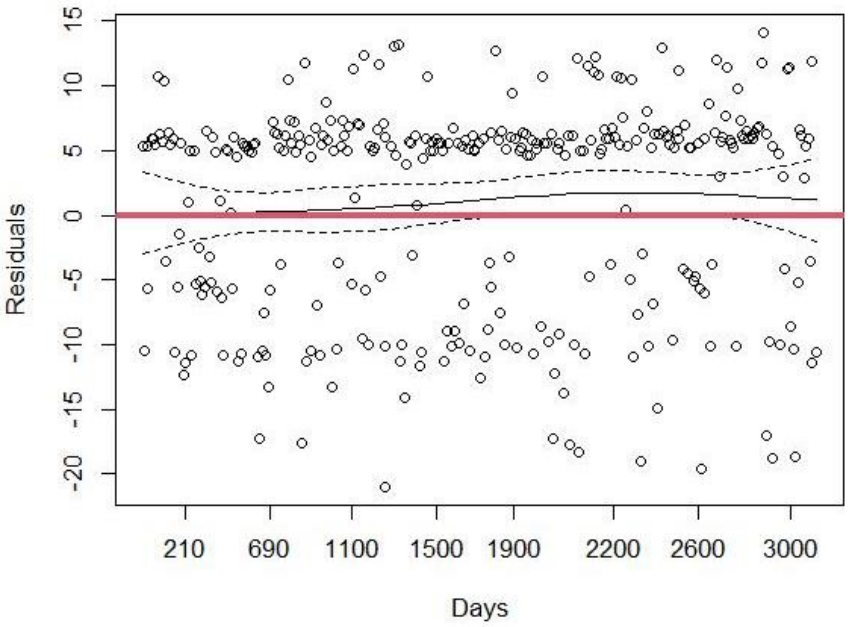


Figure T14. Plot of Schoenfeld residuals of the working status variable in the fully adjusted model of the 2010 cohort.

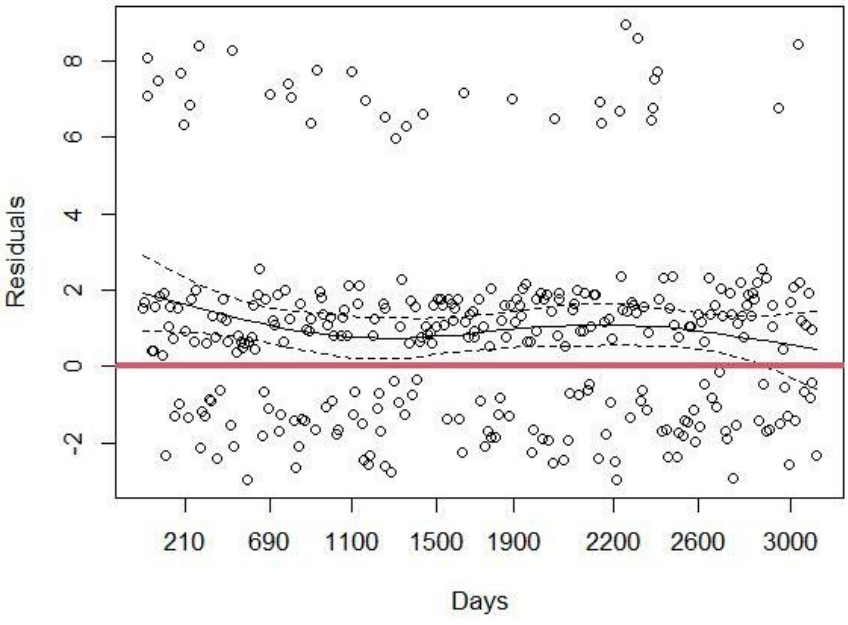


Figure T15. Plot of Schoenfeld residuals of the physical activity variable in the fully adjusted model of the 2010 cohort.

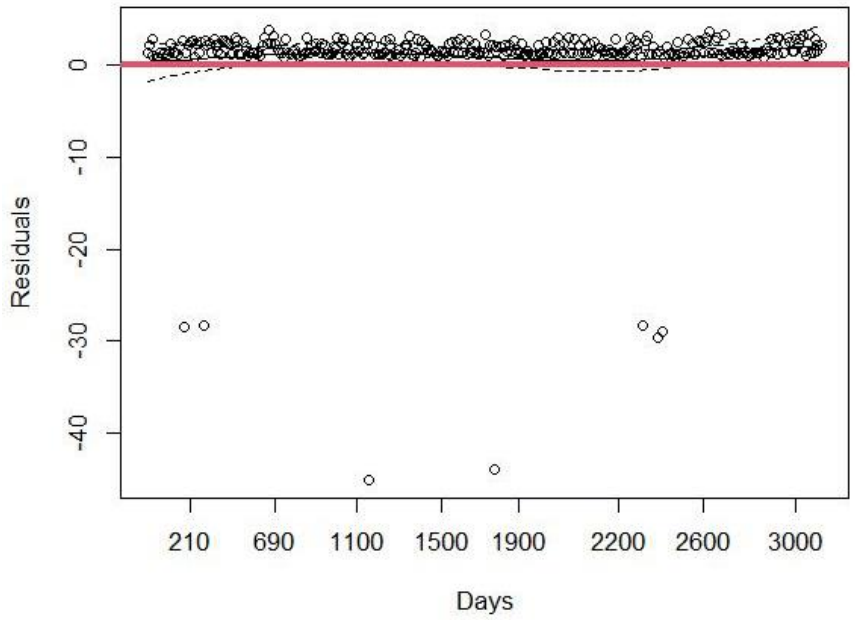


Figure T16. Plot of Schoenfeld residuals of the smoking status variable in the fully adjusted model of the 2010 cohort.

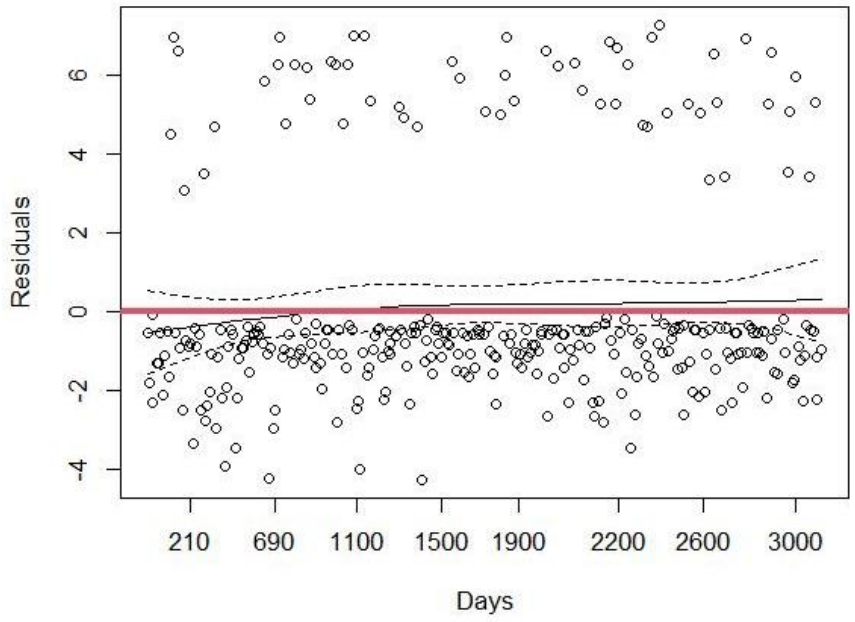


Figure T17. Plot of Schoenfeld residuals of the high-blood pressure variable in the fully adjusted model of the 2010 cohort.

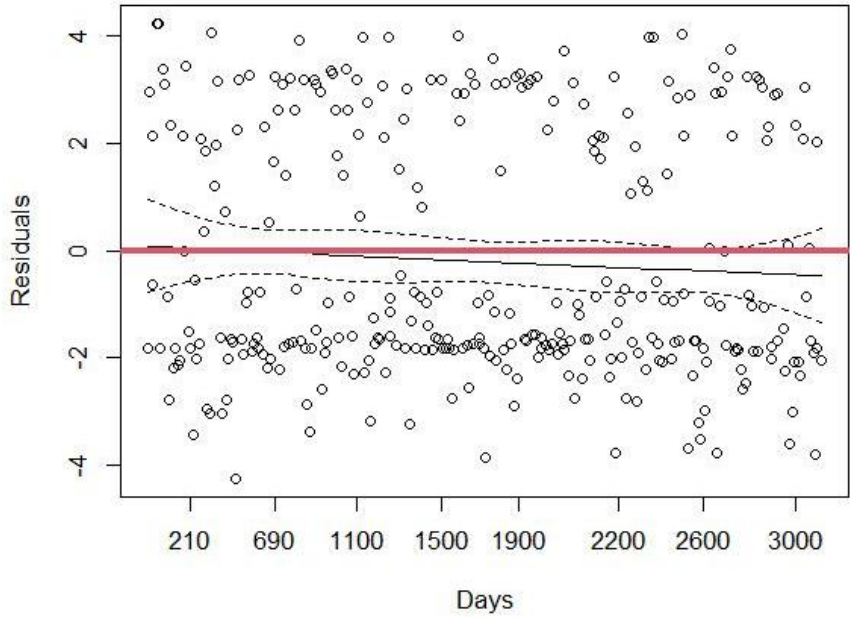
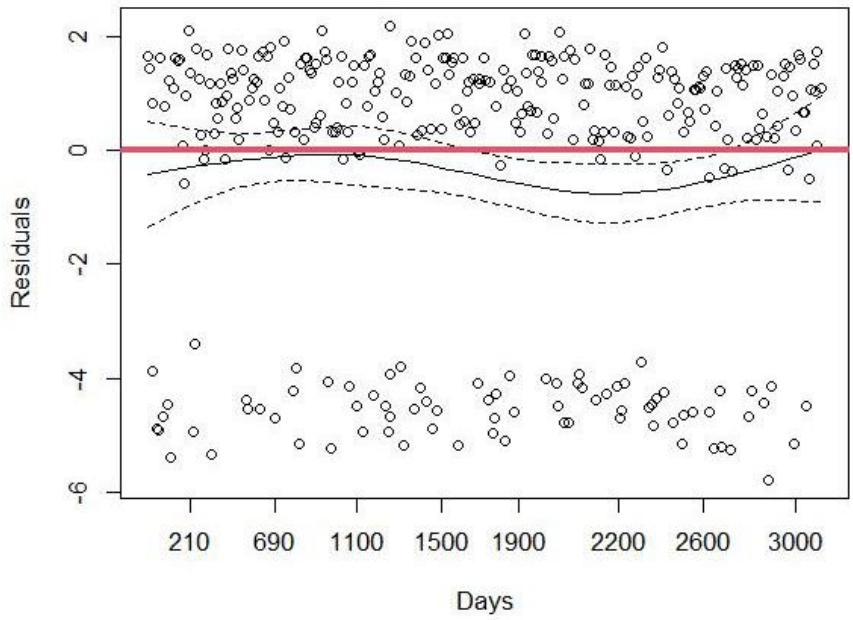


Figure T18. Plot of Schoenfeld residuals of the diabetes variable in the fully adjusted model of the 2010 cohort.



Appendix U. Comparison between fully adjusted Cox models with non-imputed and imputed data.

Table U1. Comparison between the Cox model of the 2003 cohort with the model of the 2003 cohort with imputed data.

Variables	Categories	2003 Complete Cases N=3,151			2003 Imputed data N=3,583		
		HR	95% CI	p-value	HR	95% CI	p-value
Depressive symptoms	No	1.00			1.00		
	Yes	1.38	1.02 — 1.86	0.038	1.38	1.05 — 1.82	0.021
Sex	Females	1.00			1.00		
	Males	1.53	1.12 — 2.08	0.007	1.47	1.12 — 1.94	0.006
Age groups (years)	18-44	1.00			1.00		
	45-64	5.27	2.52 — 11.0	<0.001	4.47	2.42 — 8.26	<0.001
	65+	25.4	12.1 — 53.1	<0.001	20.8	11.2 — 38.8	<0.001
Marital status	No Partner	1.00			1.00		
	Widowed/Divorced	1.21	0.81 — 1.82	0.4	1.19	0.82 — 1.72	0.4
	With Partner	0.78	0.52 — 1.17	0.2	0.79	0.55 — 1.14	0.2

Table U1. Comparison between the Cox model of the 2003 cohort with the model of the 2003 cohort with imputed data.

Variables	Categories	2003 Complete Cases N=3,151			2003 Imputed data N=3,583		
		HR	95% CI	p-value	HR	95% CI	p-value
Years of education	13+ years	1.00			1.00		
	8-12 years	1.33	0.63 — 2.85	0.5	1.21	0.67 — 2.18	0.5
	Less than 8 years	1.64	0.80 — 3.40	0.2	1.48	0.84 — 2.61	0.2
Working status	Employed + Student	1.00			1.00		
	Homemaker	1.80	1.12 — 2.90	0.016	1.36	0.90 — 2.03	0.14
	Retired	2.89	1.89 — 4.41	<0.001	2.31	1.61 — 3.31	<0.001
	Unemployed	2.33	1.45 — 3.74	<0.001	1.98	1.33 — 2.96	<0.001
Physical activity	No sport	1.00			1.00		
	>4 times monthly	0.52	0.17 — 1.64	0.3	0.38	0.12 — 1.22	0.10
	1-2 times weekly	0.80	0.46 — 1.37	0.4	0.66	0.40 — 1.10	0.11
	3+ times weekly	0.54	0.27 — 1.10	0.089	0.50	0.27 — 0.93	0.030

Table U1. Comparison between the Cox model of the 2003 cohort with the model of the 2003 cohort with imputed data.

Variables	Categories	2003 Complete Cases N=3,151			2003 Imputed data N=3,583		
		HR	95% CI	p-value	HR	95% CI	p-value
Smoking	Non-smoker	1.00			1.00		
	Smoker	1.00	0.71 — 1.41	0.9	1.01	0.75 — 1.34	0.9
HBP	With HBP	1.00			1.00		
	Without HBP	1.04	0.82 — 1.33	0.7	0.94	0.75 — 1.17	0.6
DM-II	With DM	1.00			1.00		
	Without DM	0.57	0.44 — 0.74	<0.001	0.60	0.47 — 0.77	<0.001

Table U2. Comparison between the Cox model of the 2010 cohort with the model of the 2010 cohort with imputed data.

Variables	Categories	2010 Complete Cases N=3,749			2010 Imputed data N=5,069		
		HR	95% CI	p-value	HR	95% CI	p-value
Depressive symptoms	No	1.00			1.00		
	Yes	1.38	1.02 — 1.88	0.039	1.25	0.96 — 1.63	0.10
Sex	Females	1.00			1.00		
	Males	1.49	1.16 — 1.92	0.002	1.48	1.19 — 1.83	<0.001
Age groups (years)	18-44	1.00			1.00		
	45-64	5.66	3.07 — 10.4	<0.001	4.84	2.96 — 7.92	<0.001
	65+	24.8	13.0 — 47.4	<0.001	19.9	11.8 — 33.7	<0.001
Marital status	No Partner	1.00			1.00		
	Widowed/Divorced	1.13	0.77 — 1.66	0.5	1.45	1.04 — 2.01	0.027
	With Partner	0.86	0.59 — 1.25	0.4	1.12	0.81 — 1.55	0.5

Cntd. Table U2. Comparison between the Cox model of the 2010 cohort with the model of the 2010 cohort with imputed data.

Variables	Categories	2010 Complete Cases N=3,749			2010 Imputed data N=5,069		
		HR	95% CI	p-value	HR	95% CI	p-value
Years of education	13+ years	1.00			1.00		
	8-12 years	1.14	0.71 — 1.81	0.6	1.10	0.74 — 1.64	0.6
	Less than 8 years	1.45	0.91 — 2.29	0.12	1.53	1.03 — 2.27	0.033
Working status	Employed + Student	1.00			1.00		
	Homemaker	1.07	0.70 — 1.63	0.8	0.98	0.70 — 1.39	0.9
	Retired	1.72	1.22 — 2.44	0.002	1.59	1.19 — 2.13	0.002
	Unemployed	4.09	2.63 — 6.36	<0.001	3.59	2.50 — 5.14	<0.001
Physical activity	No sport	1.00			1.00		
	>4 times monthly	1.01	0.44 — 2.30	0.9	0.90	0.43 — 1.87	0.8
	1-2 times weekly	0.20	0.05 — 0.80	0.023	0.28	0.10 — 0.76	0.012
	3+ times weekly	0.32	0.13 — 0.79	0.013	0.29	0.13 — 0.63	0.002

Cntd. Table U2. Comparison between the Cox model of the 2010 cohort with the model of the 2010 cohort with imputed data.

Variables	Categories	2010 Complete Cases N=3,749			2010 Imputed data N=5,069		
		HR	95% CI	p-value	HR	95% CI	p-value
Smoking status	Non-smoker	1.00			1.00		
	Smoker	1.07	0.79 — 1.44	0.7	1.06	0.82 — 1.35	0.7
HBP	With HBP	1.00			1.00		
	Without HBP	0.82	0.64 — 1.04	0.11	0.85	0.69 — 1.06	0.15
DM-II	With DM	1.00			1.00		
	Without DM	0.69	0.53 — 0.90	0.006	0.72	0.57, 0.90	0.003

Appendices References

1. Lund C, Brooke-Sumner C, Baingana F, et al (2018) Social determinants of mental disorders and the Sustainable Development Goals: a systematic review of reviews. The Lancet Psychiatry 5:357–369. https://doi.org/10.1016/S2215-0366(18)30060-9
2. Gracey M, King M (2009) Indigenous health part 1: determinants and disease patterns. Lancet 374:65–75. https://doi.org/10.1016/S0140-6736(09)60914-4
3. Veling W (2013) Ethnic minority position and risk for psychotic disorders. Curr Opin Psychiatry 26:166–171. https://doi.org/10.1097/YCO.0b013e32835d9e43
4. Black E, Kisely S, Alichniewicz K, Toombs M (2017) Mood and anxiety disorders in Australia and New Zealand's indigenous populations: A systematic review and meta-analysis. Psychiatry Res 255:128–138. https://doi.org/10.1016/J.PSYCHRES.2017.05.015
5. Freire G, Schwartz Orellana SD, Zumaeta Aurazo M, et al (2015) Indigenous Latin America in the twenty-first century : the first decade. Washington D.C.
6. Alvarado BE, Zunzunegui MV, Béland F, et al (2007) Social and Gender Inequalities in Depressive Symptoms Among Urban Older Adults of Latin America and the Caribbean
7. Garcia-Alvarez R (1986) Epidemiology of Depression in Latin America. Psychopathology 19:22–25. https://doi.org/10.1159/000285128
8. Kisely S, Alichniewicz KK, Black EB, et al (2017) The prevalence of depression and anxiety disorders in indigenous people of the Americas: A systematic review and meta-analysis. J Psychiatr Res 84:137–152. https://doi.org/10.1016/J.JPSYCHIRES.2016.09.032
9. Franco-Díaz KL, Fernández-Niño JA, Astudillo-García CI (2017) Prevalencia de síntomas depresivos e invarianza factorial de la Escala de Depresión del Centro de Estudios Epidemiológicos (CES-D) en población indígena mexicana. Biomédica 38:134–147. https://doi.org/10.7705/biomedica.v38i0.3681
10. Instituto Nacional de Estadísticas (2018) Síntesis de Resultados CENSO 2017. Santiago
11. Vicente B, Kohn R, Rioseco P, et al (2005) Psychiatric Disorders among the Mapuche in Chile. Int J Soc Psychiatry 51:119–127. https://doi.org/10.1177/0020764005056759
12. Gallardo-Peralta LP, Sánchez-Moreno E, De Roda ABL, Astray AA (2015) Ethnicity, Social Support, and Depression Among Elderly Chilean People. J Psychol 149:601–629. https://doi.org/10.1080/00223980.2014.946462
13. Littlewood R (1990) From categories to contexts: a decade of the "new cross-cultural psychiatry." Br J Psychiatry 156:308–327. https://doi.org/10.1192/bjp.156.3.308
14. Rojas G, Fritsch R, Castro A, et al (2011) Trastornos mentales comunes y uso de servicios de salud en población inmigrante. Rev Med Chil 139:1298–1304. https://doi.org/10.4067/S0034-98872011001000008

15. Urzúa A, Cabrera C, Carvajal CC, Caqueo-Urízar A (2019) The mediating role of self-esteem on the relationship between perceived discrimination and mental health in South American immigrants in Chile. Psychiatry Res 271:187–194. https://doi.org/10.1016/J.PSYCHRES.2018.11.028

16. Turunen E, Hiilamo H (2014) Health effects of indebtedness: a systematic review. BMC Public Health 14:489. https://doi.org/10.1186/1471-2458-14-489

17. Münster E, Rüger H, Ochsmann E, et al (2009) Over-indebtedness as a marker of socioeconomic status and its association with obesity: a cross-sectional study. BMC Public Health 9:286. https://doi.org/10.1186/1471-2458-9-286

18. Adams DR, Meyers SA, Beidas RS (2016) The relationship between financial strain, perceived stress, psychological symptoms, and academic and social integration in undergraduate students. J Am Coll Heal 64:362–70. https://doi.org/10.1080/07448481.2016.1154559

19. Drentea P, Lavrakas PJ (2000) Over the limit: the association among health, race and debt. Soc Sci Med 50:517–529. https://doi.org/10.1016/S0277-9536(99)00298-1

20. Richardson T, Elliott P, Roberts R (2013) The relationship between personal unsecured debt and mental and physical health: A systematic review and meta-analysis. Clin Psychol Rev 33:1148–1162. https://doi.org/10.1016/J.CPR.2013.08.009

21. Alley DE, Lloyd J, Pagán JA, et al (2011) Mortgage delinquency and changes in access to health resources and depressive symptoms in a nationally representative cohort of Americans older than 50 years. Am J Public Health 101:2293–8. https://doi.org/10.2105/AJPH.2011.300245

22. Zimmerman FJ, Katon W (2005) Socioeconomic status, depression disparities, and financial strain: What lies behind the income-depression relationship? Health Econ 14:1197–1215. https://doi.org/10.1002/hec.1011

23. Drentea P, Reynolds JR (2012) Neither a Borrower Nor a Lender Be. J Aging Health 24:673–695. https://doi.org/10.1177/0898264311431304

24. Hojman DA, Miranda Á, Ruiz-Tagle J (2016) Debt trajectories and mental health. Soc Sci Med 167:54–62. https://doi.org/10.1016/J.SOCSCIMED.2016.08.027

25. Diez Roux A V., Mair C (2010) Neighborhoods and health. Ann N Y Acad Sci 1186:125–145. https://doi.org/10.1111/j.1749-6632.2009.05333.x

26. Matheson FI, Moineddin R, Dunn JR, et al (2006) Urban neighborhoods, chronic stress, gender and depression. Soc Sci Med 63:2604–2616. https://doi.org/10.1016/J.SOCSCIMED.2006.07.001

27. Riumallo-Herl CJ, Kawachi I, Avendano M (2014) Social capital, mental health and biomarkers in Chile: Assessing the effects of social capital in a middle-income country. Soc Sci Med 105:47–58. https://doi.org/10.1016/J.SOCSCIMED.2013.12.018

28. Kim D (2008) Blues from the Neighborhood? Neighborhood Characteristics and Depression. Epidemiol Rev 30:101–117.

https://doi.org/10.1093/epirev/mxn009

29. Blair A, Ross NA, Gariepy G, Schmitz N (2014) How do neighborhoods affect depression outcomes? A realist review and a call for the examination of causal pathways. Soc Psychiatry Psychiatr Epidemiol 49:873–887. https://doi.org/10.1007/s00127-013-0810-z
30. Mair C, Roux D, Galea S, et al (2008) Are neighbourhood characteristics associated with depressive symptoms? A review of evidence. J Epidemiol Community Heal 62:940–946. https://doi.org/10.1136/JECH.2007.066605
31. Harpham T, Grant E, Rodriguez C (2004) Mental health and social capital in Cali, Colombia. Soc Sci Med 58:2267–2277. https://doi.org/10.1016/J.SOCSCIMED.2003.08.013
32. Zapata Roblyer MI, Betancourth Zambrano S (2017) Crime Victimization and Suicidal Ideation Among Colombian College Students: The Role of Depressive Symptoms, Familism, and Social Support. J Interpers Violence 35:1 –22. https://doi.org/10.1177/0886260517696856
33. Murray J, Lima NP, Ruivo ACO, et al (2018) Lifelong robbery victimisation and mental disorders at age 18 years: Brazilian population-based study. Soc Psychiatry Psychiatr Epidemiol 53:487–496. https://doi.org/10.1007/s00127-018-1488-z
34. Andrade LH, Wang Y-P, Andreoni S, et al (2012) Mental Disorders in Megacities: Findings from the São Paulo Megacity Mental Health Survey, Brazil. PLoS One 7:e31879. https://doi.org/10.1371/journal.pone.0031879
35. Lorenc T, Clayton S, Neary D, et al (2012) Crime, fear of crime, environment, and mental health and wellbeing: Mapping review of theories and causal pathways. Health Place 18:757–765
36. Curry A, Latkin C, Davey-Rothwell M (2008) Pathways to depression: The impact of neighborhood violent crime on inner-city residents in Baltimore, Maryland, USA. 67:23–30
37. Cutrona CE, Russell DW, Brown PA, et al (2005) Neighborhood context, personality, and stressful life events as predictors of depression among African American women. J Abnorm Psychol 114:3–15. https://doi.org/10.1037/0021-843X.114.1.3
38. Stafford M, McMunn A, De Vogli R (2011) Neighbourhood social environment and depressive symptoms in mid-life and beyond. Ageing Soc 31:893–910. https://doi.org/10.1017/S0144686X10001236
39. Schootman M, Andresen EM, Wolinsky FD, et al (2007) Neighbourhood environment and the incidence of depressive symptoms among middle-aged African Americans. J Epidemiol Community Health 61:527–32. https://doi.org/10.1136/jech.2006.050088
40. Illanes V E, Bustos M L, Vizcarra L MB, Muñoz N S (2007) Violencia y factores sociales en mujeres de la ciudad de Temuco. Rev Med Chil 135:326–334. https://doi.org/10.4067/S0034-98872007000300007
41. Pontificia Universidad Católica (2010) Informe Final ENS 2009-2010. Santiago
42. Evans GW, Wells NM, Chan H-YE, Saltzman H (2000) Housing quality and

mental health. J Consult Clin Psychol 68:526–530. https://doi.org/10.1037/0022-006X.68.3.526

43. Sederer LI (2016) The Social Determinants of Mental Health. Psychiatr Serv 67:234–235. https://doi.org/10.1176/appi.ps.201500232

44. Cutrona CE, Wallace G, Wesner KA, et al (2006) Neighborhood Characteristics and Depression: An Examination of Stress Processes. Curr Dir Psychol Sci 15:188–192. https://doi.org/10.1111/j.1467-8721.2006.00433.x

45. Howden-Chapmam P (2004) Housing standards: A glossary of housing and health. J. Epidemiol. Community Health 58:162–168

46. Rautio N, Filatova S, Lehtiniemi H, Miettunen J (2018) Living environment and its relationship to depressive mood: A systematic review. Int J Soc Psychiatry 64:92–103. https://doi.org/10.1177/0020764017744582

47. Galea S, Ahern J, Rudenstine S, et al (2005) Urban built environment and depression: a multilevel analysis. J Epidemiol Community Heal 59:822–827. https://doi.org/10.1136/jech.2005.033084

48. Weich S, Blanchard M, Prince M, et al (2002) Mental health and the built environment: Cross – sectional survey of individual and contextual risk factors for depression. Br J Psychiatry 180:428–433. https://doi.org/10.1192/bjp.180.5.428

49. Shenassa ED, Daskalakis C, Liebhaber A, et al (2007) Dampness and mold in the home and depression: an examination of mold-related illness and perceived control of one's home as possible depression pathways. Am J Public Health 97:1893–9. https://doi.org/10.2105/AJPH.2006.093773

50. Stewart R, Prince M, Harwood R, et al (2002) Quality of accommodation and risk of depression in later life: An analysis of prospective data from the Gospel Oak Project. Int J Geriatr Psychiatry 17:1091–1098. https://doi.org/10.1002/gps.749

51. Jaitman L (2015) Urban infrastructure in Latin America and the Caribbean: public policy priorities. Lat Am Econ Rev 24:13. https://doi.org/10.1007/s40503-015-0027-5

52. de Vries E, Rincon CJ, Tamayo Martínez N, et al (2018) Housing index, urbanisation level and lifetime prevalence of depressive and anxiety disorders: a cross-sectional analysis of the Colombian national mental health survey. BMJ Open 8:e019065. https://doi.org/10.1136/bmjopen-2017-019065

53. Araya R, Lewis G, Rojas G (2003) Education and income: which is more important for mental health? J Epidemiol Community Heal 57:501–505. https://doi.org/10.1136/jech.57.7.501

54. Connolly MA, Gayer M, Ryan MJ, et al (2004) Communicable diseases in complex emergencies: impact and challenges. Lancet 364:1974–1983. https://doi.org/10.1016/S0140-6736(04)17481-3

55. Fay M (2005) The Urban Poor in Latin America. Washington DC

56. Brown CR, Hambleton IR, Sobers-Grannum N, et al (2017) Social determinants of depression and suicidal behaviour in the Caribbean: a systematic review. BMC Public Health 17:577. https://doi.org/10.1186/s12889-

017-4371-z

57. Mullings JA, McCaw-Binns AM, Archer C, Wilks R (2013) Gender differences in the effects of urban neighborhood on depressive symptoms in Jamaica. Rev Panam Salud Publica;34(6),dec 2013

58. Ministerio del Desarrollo Social y Familia (2011) Resultados Vivienda CASEN 2011. Santiago

59. Ministerio del Desarrollo Social y Familia (2017) Resultados Vivienda CASEN 2017. Santiago

60. Ministerio de Desarrollo Social (2015) Pobreza Multidimensional de Hogares en la Región Metropolitana de Santiago: Resultados encuesta CASEN 2013. Santiago